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OUTER COURT STOREYARD, DIVISION OF PURCHASES AND SUPPLIES, CLEVELAND.

PURCHASING AND DISTRIBUTING SUPPLIES IN CLEVELAND*

Operation of the Division of Purchases and Supplies—Standardizing Articles—Purchase by Contract—Emergency Purchases—Sales of Public Property—Supervision of Storerooms—Distributing Supplies

By A. R. CALLOW.

The Purchasing Department of the city of Cleveland, Ohio, was created August 1, 1907, under authority of an Ohio state law, for the purpose of combining and centralizing the purchases of the various divisions of the city government.

The division is now operating under authority of the new city charter, which became effective January 1, 1914; but the title has been changed under the provisions of this charter to the Division of Purchases and Supplies, and the commissioner of the division is charged with the duty of and given the authority to make all purchases for the city in the manner provided by ordinance; also to sell all property, real and personal, of the city not further needed or which has become unsuitable for the use for which it was purchased. The commissioner is also given charge of such store rooms and warehouses as the council may by ordinance provide.

* About six years ago we published a description of Cleveland's Purchasing Department, also written by Mr. Callow, who then had the title of Purchasing Agent. Experience since then has suggested some changes, and the new charter has required others, in this work, making it worth while to again describe at some length the system employed.

† Commissioner, Division of Purchase and Supplies, Cleveland, O.

The council ordinance passed to make the above provisions of the charter effective provides that purchases shall be made only upon receipt of requisition, which shall first have been approved or authorized by the director in charge of the division which issues it. It provides also that a bulletin board must be established in the office of the Division of Purchases and Supplies and a copy of each requisition posted thereon for a period of not less than forty-eight hours before an order is placed for the commodities listed on said requisition.

The commissioner is given authority to standardize articles and supplies, subject to the approval of the Board of Control should any director appeal therefrom, stating his objection to the particular item so standardized to which he takes exception.

The ordinance places a limit of \$1,000 upon purchases to be made by means of the bulletin board method above described and requires all contracts involving an expenditure of more than \$1,000 to be made by the following procedure:

1. Authorization by council ordinance or resolution.
2. Publication in the "City Record," for not less than

two weeks nor more than four weeks, of notice of proposed receipt of bids.

3. Posting of notice of proposed receipt of bids on the bulletin board in the office of the Division of Purchases and Supplies.

4. Opening of bids by the commissioner of purchases and supplies at 12 o'clock noon, on the day fixed for opening them.

5. Tabulation of bids and recommendation by director to the Board of Control.

6. Award by the Board of Control (mayor and six directors of departments) and the drawing and execution of contract supervised by the contract clerk located in the office of the commissioner of purchases and supplies.

Emergencies are provided for by a clause permitting the commissioner to buy or contract without compliance with the above provisions, but in such instances an immediate and complete report reciting the emergency and giving detailed information with reference to the purchase must be made to the council in cases where the expenditure is in excess of \$1,000 and in all cases to the director in charge of the division for which the purchase was made.

Sales of personal property are required to be made upon written communication from the director in whose charge such property is placed; said communication must give complete description and specifications of the articles to be sold and notice of sale must be posted upon the bulletin board for forty-eight hours if less than \$1,000 is involved, and if the value involved is more than \$1,000 the notice must be posted and authority must be had from the council, specifications issued, advertisements had, etc., in the same manner as is required in making contracts for the purchase of articles in excess of \$1,000.

The council ordinance outlines a method for supervision of store-rooms and warehouses, as provided for in the charter, by authorizing and directing the commissioner of purchases and supplies to supervise all the storerooms and warehouses now established by the several divisions of the city and placing under his supervision all storekeepers, stockkeepers, clerks and others charged with the duty of maintaining and disbursing stores and supplies. The commissioner is given authority, with the consent of the Board of Control, to increase or diminish the number of storerooms.

In compliance with the requirements of the charter, the Division of Purchases and Supplies has been organized with the idea in mind of specializing in the various functions for which it is responsible, these being classified as:

1. Purchases totaling less than \$1,000 each.
2. Contracts involving more than \$1,000 each.
3. Sales.
4. Supervision of storerooms.

Purchases are made for 100 divisions of the city government.

The following tabulation for the years 1908 to 1914 inclusive will indicate how great has been the growth of the city and the activities of its government.

Year	Number of transactions	Amount of purchases	Cash discount	Cost of operating department	Percentage of cost of operation to total purchases
1907-5mo.	13,529	\$391,894.94	\$926.08	\$5,281.00	1.092%
1908	34,260	1,688,555.43	4,607.58	15,041.00	.89 %
1909	37,955	1,526,757.76	3,965.88	14,629.00	.95 %
1910	43,841	1,723,570.82	5,993.13	15,560.00	.9 %
1911	41,226	1,834,869.97	9,512.30	16,358.00	.88 %
1912	54,165	2,733,941.87	12,537.77	16,503.00	.6 %
1913	64,031	3,333,709.24	10,089.38	18,049.00	.54 %
1914	48,705	3,331,029.95	10,993.46	22,539.36	.68 %
Total	...	\$16,564,329.98	\$58,625.58	\$123,960.36	.82 %

In explanation of the increase in cost of operation for the year 1914 over 1913, consideration must be given to the fact that the work of advertising for 525 formal contracts each involving \$1,000 or more, receiving bids for same and drawing the contracts after they were awarded by the Board of Control has increased the work in the

office very materially. Two hundred and nine subsidiary agreements modifying formal contracts were drawn and the necessary clerical work in connection therewith was carried forward in the office of the Division of Purchases and Supplies. This work was concentrated in the one office in 1914 for the first time.

The operation of purchasing is divided into a buying corps and a clerical force; the buying is done by the commissioner, deputy commissioner and five buyers; the clerical department is composed of one chief clerk, five clerks, four stenographers, and one typewriter copyist. Each buyer specializes upon a main subject or subjects, but is required in addition to these main subjects to buy smaller subdivisions of the commodity classifications, for the obvious reason that we do not buy in quantities sufficiently large to require a specialist in all of the different kinds of articles which are purchased. Major classifications are:

1. Hardware, machinery, etc.
2. Electrical and plumbing supplies.
3. Dry goods, wearing apparel, etc.
4. Meats, groceries and provisions.
5. Drugs, chemicals, laboratory and hospital supplies.
6. Fuel, oils, paints, disinfectants, etc.
7. Lumber, building materials, sewer pipe, etc.

Requisitions are distributed by the commissioner to the buyers in duplicate, and the duplicate is posted immediately by the buyer on the bulletin board. Quotations are then noted by him on the original requisition until the date fixed for closing, which may be forty-eight hours, the minimum prescribed by law, or any date exceeding that time which in the opinion of the buyer will give competitors sufficient time in which to formulate their quotations. Award is then made by telephone or letter, referring to the formal order number which originates on the requisition and which forms the basis for permanent files in the Division of Purchases and Supplies, Division of Accounts and Treasury.

Orders are given in this informal manner so that deliveries may not be delayed, but are followed immediately by formal orders written in quadruplicate and distributed as follows: first copy to the merchant, second to the department which issued the requisition, third to the auditor and the fourth copy remains in the Division of Purchases and Supplies. This last copy is retained in a "live file" until receipt of merchant's invoice and the independent tally sheet required from the storekeeper or person who receives the articles. If quantities and unit prices listed on the copy of the order, the merchant's invoice and the tally sheet correspond and check, a voucher is then written up to which is attached the original invoice of the vendor. This voucher, after receiving the necessary signatures of approval, is forwarded to the commissioner of accounts who issues his warrant on the city treasurer authorizing payment. One copy of the voucher is sent to the department interested and one copy kept in the files of the Division of Purchases and Supplies.

CONTRACTS INVOLVING MORE THAN \$1,000 EACH.

Contracts involving an expenditure of more than \$1,000 each were awarded last year as follows:

Total miscellaneous contracts during year 1914	\$6,370,660.87
Total miscellaneous subsidiary agreements covering 1914 contracts	172,767.40
Total paving and sewer contracts during year 1914	2,627,072.11
Total paving and sewer subsidiary agreements covering 1914 contracts	54,871.09
Total subsidiary agreements covering contracts prior to January, 1914	88,196.25

Grand total\$9,313,477.72

The contract department also supervised formal sales for the various divisions, resulting in total receipts of \$223,254 by the city for articles not further needed for use

by any city department. A description has already been given in the early paragraphs of this article outlining the method of making these formal contracts.

SALES.

Sales are made, upon request of the division owning the articles not further needed, by means of sales requisition which must be approved by the director in charge of the division and forwarded to the commissioner of purchases and supplies in duplicate. The duplicate is posted on the bulletin board under a suitable heading and persons interested in buying are notified by mail from lists established in this office. This notice fixes a time for the opening of bids, and award is made to the highest and best bidder upon the basis of the specifications accompanying the notification. Forms printed in quadruplicate are used to complete sales transactions. The first copy is a notice to the successful bidder that he has been awarded the articles to be sold and instructs him when he is to remove them and to which division head payment is to be made. The second copy is sent to the division which issued the sales requisition; the third copy to the commissioner of accounts, and the fourth copy is retained in the office of the commissioner of purchases and supplies. All notices are in the same form.

With the copy which goes to the division, a form of tally sheet is also inclosed, with instructions that materials given out in accordance with the sales order must be tallied on this form, which is to be forwarded without delay to the office of the commissioner of accounts. This system gives the commissioner of accounts notice that money will become due upon the occasion of each sale and requires an independent accounting to him from the heads of the divisions for each sales requisition. The system has been in force only a short time but is working with excellent results.

SUPERVISION OF STOREROOMS.

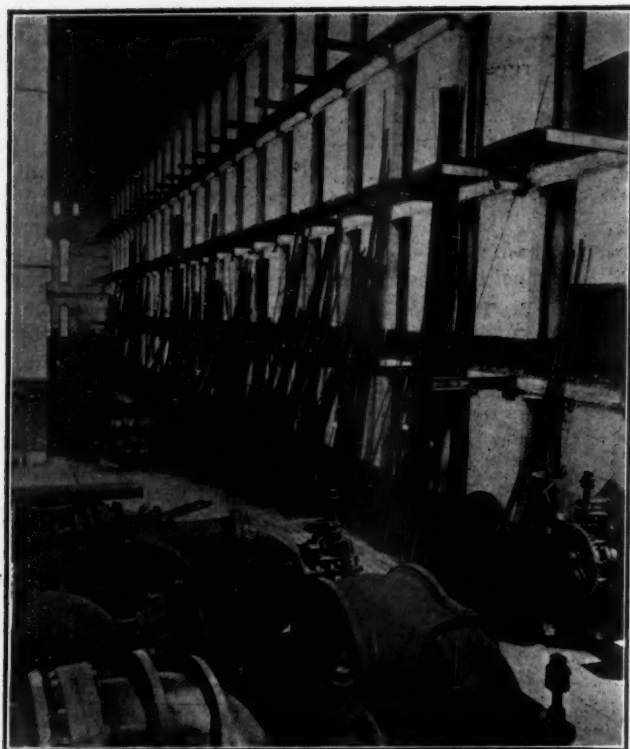
The supervision of stores provides control of all storeroom stocks at a central point in the office of the Division of Purchases and Supplies. It went into effect January 1, 1915, at which time stock ledgers were assembled from the storerooms of the various subdivisions of the city government and a central stock ledger established in this division under the supervision of a general storekeeper, who is authorized to draw from any of the sub-storerooms located at various points throughout the city for the benefit of any other division. The general storekeeper also controls and maintains an account of materials and articles to be kept at the several storerooms. This results in securing deliveries from sub-storerooms nearest the point at which supplies are to be used and gives a maximum of service to all divisions by making departmental storerooms located at advantageous points throughout the city available for use of all divisions.

The storeroom fund was established by the council by means of making an appropriation for storeroom purposes equal to the total of all detailed appropriations for materials and supplies as allowed for the several departments. This gave an appropriation of \$2,700,000 with which to purchase all stocks on hand at the various division storerooms, and to replenish the stocks as they were exhausted. The result is that the storeroom stocks now located at various points throughout the city are owned by the general storeroom and are disbursed by the sub-storekeepers upon requisitions from parties authorized to draw from the storerooms. A daily or weekly report, as the case may be, is made to the general storekeeper in the Division of Purchases and Supplies.

The merit in the system is that the stockkeepers have nothing to do with pricing stocks and can devote their entire energies to accounting for the receipt of articles



ONE OF THE STOREROOMS OF THE DIVISION OF PURCHASES AND SUPPLIES.



OLD WORKHOUSE CELLROOM CONVERTED INTO A STOREROOM.

and disbursing them upon requisitions. These records are kept in a form of a card system detailing each receipt and disbursement of material and showing the balance on hand at the end of each day. The entries are made at each sub-storeroom directly from the original requisition after it has been filled.

Storeroom requisitions are assembled and forwarded to the central office of the Division of Purchases and Supplies where all pricing is done. At this point the requisitions are assembled by departments and totaled, and a charge made against each department. This charge is made by means of a storeroom invoice showing in detail the total amount of material obtained for a definite period. These storeroom invoices are drawn in triplicate. The original, after receiving the necessary signatures of approval in the department, is forwarded to the commissioner of accounts, who issues the proper warrant on the city treasurer for payment into the storeroom fund. The duplicate is retained by the department against which it is charged, for their bookkeeping record. The third copy remains in the file of the Division of Supplies for reference.

Previous to the installation of this system it had been customary to do all pricing and make all charges at the various sub-storerooms. One of the main difficulties found in this method of handling stocks has been the inability of the sub-storeroom to obtain correct prices soon enough to do their billing. Under the present system the pricing being done at the Division of Purchases and Supplies, any difficulty arising from the failure of the merchant to promptly send in his invoice can be easily corrected and the billing to the departments can be done promptly without any holding up of the storeroom bills for want of prices on one or two commodities.

The real accomplishment is, however, an accounting for supplies, which is just as important as accounting for money. This function has never received by any city the attention that its importance deserves.

The system also helps very much in working out the

problem of standardizing supplies, because the records of the many divisions are brought together where analysis can be made. Interchange of experience with commodities is also a result.

REFUSE COLLECTION IN AUGUSTA.

Though no new territory has been added to the city of Augusta, Ga., recently, the amount of garbage and rubbish collected has been increasing rapidly, the total collection for 1914 being 30,017 loads of trash and garbage and 221 dead animals, an increase of 2,438 loads over the collections of the previous year. The garbage is disposed of by dumping on three dumps. On account of the location of these and also on account of the large territory covered by the corporate limits, the hauls are necessarily long, the extreme haul being about 3 miles.

The equipment of the scavenger service is hardly sufficient to keep up with this work and on account of the long haul it is necessary to collect very heavy loads. This is proving disastrous to the mules, which cannot stand the long hauls and the heavy loads. Incinerator plant units in various parts of the city are being considered and may be installed soon. The cost of collecting and disposing of the garbage and trash last year was \$18,376.99.

The same department has charge of street sprinkling which, in 1914, cost \$4,197.38. The street cleaning forces, also under this department, hauled away 6,473 loads of street sweepings and sand trap collections at a total cost of \$10,256.65, which includes the actual work of cleaning. This is done at night by machines, carts following the machines to remove the refuse, which is used as fertilizer at the city stockade.

STREET SWEEPING IN BOISE.

Editor Municipal Journal,
50 Union Square, New York City.

Dear Sir:

I am enclosing you a report of Boise City's experience with an Elgin motor sweeper, which I think you will find interesting enough to print. After looking over the street cleaning data collected and published by you in your November issues, I decided that I would keep a record of street cleaning affairs. The following is the result of the first six months:

During the six months ending June 30 the sweeper worked 1,616 hours, swept 32,364,812 square yards and collected 1,802 cubic yards of sweepings, using 1,335 gallons of gasoline, 310 quarts of oil and 35 hickory fiber brooms. I have classified these different items and calculated the cost per 1,000 square yards swept, as follows:

	Per 1,000 Square Yards
1,335 gallons of gasoline @ 17 cents.....	\$0.0070
310 quarts of oil @ 12½ cents.....	.0011
Supplies and repairs.....	.0109
2,460 pounds of broom fiber @ 7 cents.....	.0053
Labor making brooms.....	.0013
2 drivers @ \$3 and 1 gutter sweeper @ \$2.50 per day.....	.0361
Disposal of sweepings.....	.0191
Supervision and clerical.....	.0123
Depreciation, 15%.....	.0178
Interest on investment, 7%.....	.0082
	\$0.1191

Nearly 12 cents per 1,000 square yards swept is a remarkable showing when you consider that the average cost of sweeping with horse-drawn sweepers is 33 cents per 1,000 square yards.

Boise has 12 miles of pavement, consisting of sheet asphalt, bitulithic, concrete and one block of brick pavement. The streets are practically level, the greatest grade being 1½ per cent.

Yours truly,
J. M. SHARP,
Boise City Street Dept.

The foreman's daily report is in the following form:

DAILY SWEEPING REPORT.

Date: June 30th, 1915.

Streets Swept.	Square Yards.
Maine, 5th to 16th.....	24,613
Idaho, 5th to 13th.....	16,155
Grone, 13th to Fairview Ave.....	6,265
Front, 11th to 16th.....	16,322
Fairview Ave., 16th to 28th.....	18,600
State, 8th to 28th.....	30,833
8th, Front to State.....	11,848
9th, Front to State.....	8,044
10th, Front to State.....	9,488
13th, Front to State.....	8,964
14th, Front to Main.....	2,767
15th, Front to Main.....	2,767
16th, Front to Main.....	2,767
	157,433

Gasoline, 5 gals. Oil, 1 qt. Total, Sweepings collected, 2 loads, 6 cubic yards.

Remarks: Prestolite recharged. New broom.

Hours worked A. M. to P. M. to A. M., 7 1/2 hrs.

Signed, Olsen.

The driver also hands in daily a report card giving the number of loads collected from patrolmen, from guttermen and from sweepers.

CALGARY'S MUNICIPAL STREET RAILWAY

Six Years of Operation—Profit Shown in Spite of Hard Times—Equipment and Operating Force—Recent Economies

By W. E. HARDENBURG.

In spite of the hard times experienced in Canada and the United States during 1914 and the effect which this has had upon the street railway systems in most of the cities of that Dominion, the municipal street railway system of Calgary, Alberta, by the recent annual report of the city commission, came through with a very satisfactory surplus for that year. After the usual opposition of private interests, the city started work on constructing this road in September, 1908, and within a year twelve cars were in operation and sixteen and a half miles of track. During the next five years the city grew rapidly and the system was extended almost continuously so that by the end of 1914 there were 78 cars running over 71 1/2 miles of track and the employees numbered more than 275 men and received wages of about \$18,275 per month. In addition to these 78 passenger cars, the city also possesses 6 trailers, an observation car, 8 work cars, 3 sprinklers, a construction car and a sweeper. A part of the 78 cars are kept in reserve, but 65 were operated during 1913 and 1914, 48 during 1912 and 22 during 1911. The mileage of track built between July 1, 1909, and July 1, 1910, was 3 1/2, 10 miles the next year, 27 1/2 the following year, 16 1/2 the following year and one mile between July 1, 1913, and July 1, 1914. The number of men employed also increased from 16 when the road opened July 5, 1909, to 348 on July 1, 1913, but the number was reduced to 280 on July 1, 1914. With the outbreak of the war in Europe still further reductions were made in the service, the number of cars operated being reduced to 58.

During the year ending December 31, 1914, the passenger earnings amounted to \$680,198, which miscellaneous earnings and bank interest increased to \$702,530. The expenditures consisted of \$14,672 for ways and structures, \$60,772 for equipment, \$398,337 for transportation; in addition to which \$106,359 was paid in interest on bonds, \$3,373 for taxes, \$1,011 for rent, \$41,479 sinking fund, \$29,399 depreciation, \$41,298 general expenses and \$1,998 bad debts. This left a surplus for the year of \$5,832. Of the revenue, under the head of "miscellaneous earnings," about \$10,000 was obtained from advertisements in the cars. Of the expenditures by far the largest amount was under the head of transportation, and the largest items under this were \$113,939 for power, \$248,118 for wages of conductors and motormen and \$1,470 for wages of miscellaneous car service men, \$6,340 for superintendence, \$16,808 for car service supplies, \$5,297 for cleaning and sanding tracks, \$2,263 for removing snow and ice.

As will be seen from these figures, interest, sinking fund and depreciation are allowed for, as well as operating expenses, in calculating the net profits. Moreover, beginning January 1, 1915, 2 per cent of the gross revenue is being set aside as a contingent fund to cover accidents to the public and employes and to provide for renewals and contingencies of all kinds not otherwise provided for. The depreciation rate is believed by superintendent T. H. McCauley to be excessively high, as a proof of which he points out that since the installment of the road \$311,351.80 has been set aside for this purpose.

In the statement of assets and liabilities for December 31, 1914, the following is given as the value of the road and its equipment:

Track and roadway	\$1,113,346.77
Electric line	153,136.57
Cars	281,524.74
Car trucks	90,000.00
Electric equipment of cars	163,723.44
Operating buildings and fixtures.....	60,829.07
Sub-base	339,973.87
Shop tools and machinery	5,730.39
Right-of-way	4,876.00
Electric construction under ground.....	162.50
Other items	502,329.71

\$2,715,633.06

Less depreciation fund 311,351.80

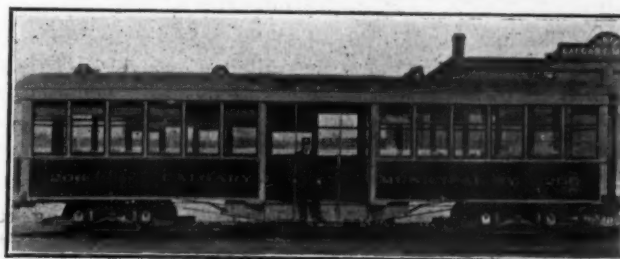
\$2,404,281.26

During the year 16,213,731 passengers were carried; the car-miles operated totaled 3,112,407, and the number of car-hours was 347,801. The earnings per car-mile were 22.201 cents and the earnings per car-hour were \$1.98. The operating expenses per car-mile were 16.549 cents and the operating expenses per car-hour were \$1.48. This shows the operating expense to have been 74.5 per cent of the revenue. The average fare per passenger was 3.95 cents.

The economy being made in operation this year is indicated by comparing the figures for the first two months



ONE OF THE ORDINARY PASSENGER CARS.



ONE OF THE TRAILERS.

of 1915 with those for 1914. These show, for 1915 and 1914, respectively, the following: Revenue per car-mile, 20.645 cents and 20.474 cents; operating expense per car-mile, 14.145 cents and 17.698 cents; surplus per car-mile, 6.501 cents and 3.054 cents. The cost of power per car-mile has been reduced from 4.887 cents to 4.052 cents, and the ratio of expense to revenue has been reduced from 85.2 per cent to 68.5 per cent.

A part of the efficiency of this system is presumably due to the fact that the superintendent has had over twenty years' experience in publicly and privately owned street railway systems and is given a free hand in the operation, and also to the policy, adopted at the start, of securing the very best possible plant and equipment and the most up-to-date time and labor saving devices. About half of the track now constructed is permanent work on paved streets, which is laid on a sub-base of four inches of concrete with six-inch ties spaced 4 feet apart, the average cost of which has been \$2 a foot. One advantage which the Calgary street railway has over most other street railways is that it assumes no liability for the pavement apart from the sub-base, the railway not being held responsible for the construction or maintenance of the pavement surface. The rails are 60-lb. and 80-lb. Lorain rails, T bonded with double compressed bonds. Intersections are of manganese steel. Overhead feeder wires of the standard type are used exclusively except that in the principal business section of the city the feeders and connections between the main power stations are placed underground.

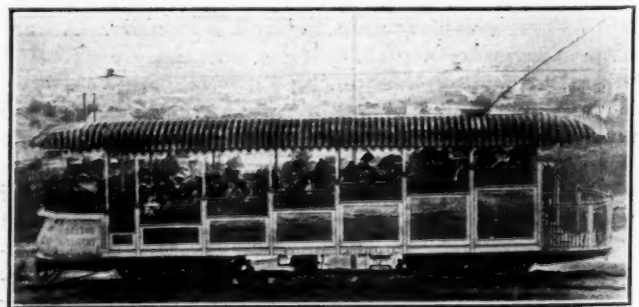
Apart from the six trailers, the cars are of coach and standard types, the majority of the former being 46 feet 6 inches long and seating 48 passengers although a number are 41 feet 6 inches long and seat 40 passengers. The standard type single-truck cars are similar to the others except that they carry only 28 passengers. All are of the pay-as-you-enter kind. During the recent efforts at economy, the cars on a few lines running into the suburbs have been operated by the motorman only, the entrance in the rear being closed, the pay box being moved up in front with the motorman and all entrances and exits made by the front door. This, however, is satisfactory only where the traffic is light. During the summer practically all cars are operated by two 40 h. p. motors, but in winter four such motors are generally used, owing to the increased traffic and the resistance occasioned by snow. The six trailers are each 41 feet 6 inches long and seat 60 passengers. The entrance is in the center of the car. These are of great value during the rush hours and are used daily, together with 22 extra cars which are put on during the evening rush hour.

The city operates a "Seeing Calgary" car, which is 46 feet long and is provided with elevated seats, nickel-plated fittings and beveled plate glass mirror sides, which is operated during the summer over all of the most interesting routes of the city at a fare of 25 cents, the trips being made hourly. This car has been a good investment, earning as much as \$124 per nine-hour day, and is well patronized even during the present period of depression. The car cost \$7,500.

All power used by the street railway is purchased from the city at the rate of $1\frac{1}{2}$ cents per kw. h. During 1914 7,470,300 kw. h. were consumed. The municipality operates its own power plant, but also purchases about 8,000 h. p. from the Kananaskis Power Company. From these sources it furnishes current to the municipal electric light plant as well as to the street railway. The city has an auxiliary steam plant which is sufficient to supply all needs should there be a breakdown in the hydro-electric

plants, and which also saves considerable extra expense for the municipality by carrying the peak loads of the street railway of about 2,000 h. p. daily.

Under the mayor of Calgary are two commissioners, each of whom has his own department, all three forming what is called the Board of Commissioners, which has authority over all the affairs of the city, subject to the city council. One of these commissioners has general charge of all public utilities, including the street railway. The commissioners are elected every two years, but the superintendent is given a free hand and thus the policy of conducting the road remains continuous. The superintendent has been able to operate the system with a comparatively small staff. Under him is a general foreman whose duties are to superintend directly the conduct of the system and to direct operations in the repair shop. His salary is about \$160 per month. The office staff consists of a chief accountant with three assistants; a chief inspector who looks after the transportation generally and who is assisted by a subordinate inspector. There are 27 men in the shops under a general foreman who receive wages of from 26 to 40 cents per hour. In the line department is a foreman at \$90 and two assistants at \$75 and \$60 respectively. The track foreman receives \$100 per month and under him are ten laborers at 30 cents an hour. There are also two track greasers who are paid 30 cents. There are 115 motormen and conductors who are paid on a sliding scale, varying from 28 cents per hour after three months' service to 35 cents an hour after three years. Time and a half is paid on holidays. Half of the cost of the employee's first uniform is met by the city and afterwards uniforms and winter coats are supplied free. All conductors when engaged are sworn in as constables with full authority to act as such either on the cars or elsewhere; the object being to maintain absolute order on the cars. Politics plays no part in employing the men, the superintendent being the sole judge as to their qualifications. Dismissals, however, are subject to right of appeal to a committee of the officers of the Street Railway Social Insurance and Sick Benefit Association who, should they deem proper, arbitrate the case with the superintendent. This association is composed of all the operating staff. It furnishes free club rooms with billiard tables, shooting galleries and ample accommodations for concerts, dances and



SIGHT-SEEING CAR.

other amusements. The fees are \$2 for entrance and \$1 per month thereafter, half of which is paid by the street railway department. In consideration of these fees, the members receive \$1.50 a day during sickness after four days, if such sickness is certified to by the city health officer, who acts as the association doctor, and also have the use of a free private ward in the hospital in case of injuries received in the course of their employment.

No passes on the road are issued to anyone. There are five classes of tickets: School tickets, ten for 25

cents; work tickets, good from 6 to 8 a. m. and from 5 to 7 p. m., eight for 25 cents; ordinary tickets, twenty-five for \$1; civic employes' tickets, thirty for \$1, which are charged to the departments whose employes use them. There is also a special ticket for the twice-a-week market days which is good for a trip to the municipal market and return. All these tickets are good for transfers to any part of the city, there being ten transfer points. Twelve routes are operated running to all parts of the city. The main business street is traversed by a car both ways every minute and other streets in the center of the city have two to five-minute service. A belt line, which encircles the business section and those occupied by the



OFFICE AND CAR BARN.

better class of residents, runs every seven and a half minutes both ways. Other suburban routes are served at intervals of from ten minutes to one hour. Formerly many of these routes were covered much more frequently, but depression consequent to the war has led to the laying off of men and curtailing of service, which has resulted in a saving of about \$800 a month. It is estimated that the use of two motors on the cars instead of four saves one-third of the power expense or approximately \$100 per day. The fire insurance on the cars also has been cut out, and tubes of Pyrene extinguishers supplied instead, thus effecting a saving of \$600 a year. The railway, however, continues to pay its employes the highest wages of any railway in the Dominion. The cars and the system generally and the service are being kept up, interest on bonds is met punctually and, as stated, a small surplus is being maintained.

SIGNAL BOX RECORDS*

How Philadelphia Keeps Record of Its Fire Alarm and Police Signal Records—Card Index Used— Information Recorded

By PRICE I. PATTON.†

In Philadelphia the records of the fire alarm and police signal boxes are kept on a card index, one card for each signal box, whether fire or police. The card records of the fire signal boxes are in charge of the chief operator of the Electrical Bureau and are made out in his division. The card is 5 by 8 inches. Besides the heading, which reads "Fire Signal Box Record, Electrical Bureau, Philadelphia," each card has spaces to enter the box number, street location, corner, opposite, front of building, location, box owned by, type of door (key or keyless), number of circuit connected on—overhead or underground, date installed. Underneath these is a space for recording dates on which the fire box was pulled and why, nature of trouble, if any, and by whom pulled. All entries are made in black ink except the record of when the box was pulled for fire, which is made in red.

On the reverse side of this card is entered; from whom

the box was purchased and address, the date purchased, and the final disposition of the box, with the date. Then there is a line for the history of the box—such entries as, "keyless door installed 8-1-98." "Remodeled 9-12-08." "Speeded 5-26-15." Underneath these entries is more space for the record of the inspection and pulling of the boxes.

A second card, 6 by 4 inches, is kept, showing the number of the box, date received, from whom purchased, type, location, date assigned to that location, date installed, and installed on (showing circuit numbers and whether overhead or underground), and a space for remarks. A number of boxes are entered on each of these cards and they are used as a short history of the box and as a check on the delivery and erection of each box. They are filed away yearly.

A third card, size 8½ by 11 inches, is kept for each signal circuit and is known as signal circuit card. Besides the heading on this card, which reads: "Signal Circuit No. —," are four columns for stations. The list of stations is always headed with City Hall, where the fire alarm operating room is located. In these columns are entered every station on that particular signal circuit in the order in which they come, including fire signal boxes, test stations, cable poles or any place to which the wire may be connected. A fifth column is headed "Protective Equipment," and in this is shown the various testing stations, in the order in which they occur, and the equipment of each, so that a test operator at headquarters may know exactly what kind of a test he can make with each station. There is also entered in the column what kind and size fuses are mounted on the various cable poles. The sixth column is a double column headed "Insulation Resistance," with one part for date and the other part for megohms per mile.

On the reverse side of this card are six columns, showing date, nature of trouble, lineman assigned, where trouble is located by test, where found, and the cause of the trouble. We find that this gives a very complete record for each signal circuit. Two books are kept, of the nature of day books, where all these data are entered as they occur, and each night this information is transferred to the fire box and signal circuit cards.

A card similar to the fire signal box card is kept for each police patrol signal box by the division head in charge of that branch of the bureau, and is headed "Police Signal Box Record, Electrical Bureau, Philadelphia." Directly under the heading are provided spaces for box number, street location, corner, opposite, front of, district, location of district station house, type, date installed, box number, changed from, date changed, box number changed to, date of change, date moved to present location. Under this is a record of the dates the box was inspected, showing date, nature of trouble (if any), and inspected by. On the reverse side is entered bought from, date and address, final disposition with date, history of changes in box, with more room for inspections.

This inspection information is gathered from forms for reports of troubles, daily report slips of inspectors and inspectors' reports which the inspectors fill up and turn in each day, showing a history of each piece of trouble or inspection; this includes the nature of the trouble or inspection, what was found or done, the time reported, if trouble, time detailed, time trouble was cleared or inspections were made, car-fare, railroad tickets or cash spent and when the man returned to the office or went to the next piece of trouble or inspection.

All these forms are the same size as the fire and police signal cards and are filed away in the same cabinet with the police signal cards. From these reports a daily report of the previous day's work is made up for the chief of the bureau and is laid on his desk by 9 o'clock each

*Paper before International Association of Municipal Electricians.
†Second Assistant Manager, Electrical Bureau, Philadelphia, Pa.

morning, showing division, report of (division head) for day, employes late, absent on leave, without leave, suspended, accidents, complaints; in the case of fire, police or high pressure work, box hours out of service, number of jobs started, finished, for both maintenance and new work, inspections and any remarks you choose to make. From these division head daily reports is made up a daily report of the complete workings of the bureau, which is on the desk of the director of the department of public safety by 11 a. m. each day.

In addition to these card records, we keep diagrams of each signal and patrol circuit, drawn to scale and showing all stations, cable poles, boxes, etc., and whether the wires are overhead or underground.

There is another type of record which we take to determine the efficiency of any fire or signal box or boxes other than those we have in use. We first compare them, part by part, giving a percentage of efficiency to each part compared, using 100 per cent for each of the parts of the box in use by us. We then strike an average and if the result is considered good enough, we purchase a number of boxes and put them in service. We then keep an exact record of the list of troubles developing for a considerable length of time, comparing them each month with the general average of troubles reported from all of our boxes in service. For instance, late in 1912 we designed a new type of patrol box, for which we drew specifications and awarded a contract for a number of them to the lowest bidder, who was not the company supplying the usual type of signal box to most of us. As soon as the boxes were delivered, we erected them on the streets and kept a record of every piece of trouble occurring in each box for about six months.

On comparing these troubles with the troubles occurring in our older boxes, we found that they were mostly due to faulty workmanship and poor material and not to the design of the box. Our next purchase of this new type of box was from the company whose materials were in pretty general use by fire and police bureaus in this country. Upon making the same comparisons and analyses of records which we kept, we found that no more trouble developed in these new boxes than in our older boxes and that we had all the advantages of the new design.

CLEVELAND MUNICIPAL LIGHT PLANT.

The following letter and enclosures from the president of the Cleveland Electric Illuminating Co. are self-explanatory. It will be remembered by those who have read our articles concerning the Cleveland municipal plant, that this plant has entered the field as a competitor of the Electric Illuminating Co. and that the rivalry between the two is quite intense.

As a matter of courtesy, we submitted these letters to Mr. Ballard, who is commissioner and chief engineer of the Division of Light and Heat of Cleveland, and who kindly furnished the data upon which our article was based, and his comments upon them are given also.

Municipal Journal,

50 Union Square, New York, N. Y.

Gentlemen: In the Municipal Journal of June 24th, 1915, on page 874, you publish a statement purporting to be a report of the State Examiner in relation to Cleveland's municipal electric light plant; this statement being headed:

"Report of State Examiner on Municipal Electric Light Plant, April 30, 1915."

Herewith you will find certified copies of a letter addressed by me to Mr. Metcalf, in reference to this statement, and also his reply thereto.

In order to be fair to your readers, you ought to publish this correspondence, which shows that Mr. Metcalf claims that he is responsible only for statements contained in his official reports to the State Bureau of Accounting,

and there is no such report as that published by you on file with the State Bureau of Accounting.

Yours very truly,

SAM'L SCOVIL,
President Cleveland Electric Illuminating Co.

(The letters are published below. Each contains the certificate of a notary public that it is a "true and correct copy" of the original.)

C. S. Metcalf, Esq., State Examiner,
City Hall, City.

Dear Sir:

In the "Municipal Journal" of June 24th, 1915, on page 874, is a statement headed as follows:

"Report of State Examiner on Municipal Electric Light Plant, April 30, 1915."

As you are the State Examiner for this district, I presume that these figures, if they be authentic, have been compiled by you. If they have been compiled by you, do I understand that you, as an accountant and the official representative of the State Bureau of Accounting, wish to be understood as certifying that the municipal electric light plant of Cleveland is actually making the showing indicated by these figures? In other words, have you made such an examination of the charges to operation and construction as to enable you to certify that the municipal plant has cared for all proper charges, and made a surplus of \$18,699.63 in the four months' period—January, February, March and April, 1915.

Yours very truly,

(Signed) SAM'L SCOVIL.

Mr. Samuel Scovil,
President Cleveland Illuminating Co.,
Cleveland, O.

Dear Sir:

In reply to your letter of July 12th with reference to State Examiner's report, as published in the Municipal Journal of June, 1915.

I have assisted in the compilation of the general ledger figures for the year 1915, from statements and reports furnished by the Cleveland Municipal Light Department.

No detailed audit of this department has been made by me, as that work does not fall within the province of my duties, as State Examiner of general city accounts.

In answer to your inquiry as to the correctness of various published statements and reports would state that I am responsible only for statements contained in my official reports to the State Bureau of Accounting.

There are certain theoretical accounts omitted, such as interest on old investments, loss in taxes, etc., these, I was not asked to pass upon. Very truly yours,

(Signed) C. S. METCALF.

Editor Municipal Journal,

50 Union Square, New York City.

Dear Sir: I note your quotations from letters from Mr. Scovil and also from copy of letter addressed to Mr. Scovil by Mr. Metcalf, State Examiner of this district, and would say that the report sent to you was a report made to me personally by Mr. Metcalf in regard to our situation in connection with the Municipal Electric Light plant operations here.

Mr. Metcalf is the State Examiner for this district, but this report was not an official report to his department. I have taken the matter up with Mr. Metcalf and he makes the statement that no items whatever had been omitted from his statement except the theoretical items of loss in taxes to the city and the interest on investments which had been made from profits of the plant itself. The interest on no items of investment made from bond funds has been omitted.

Very truly yours,

F. W. BALLARD.

Commissioner and Chief Engr., Div. of Light and Heat.

MAINTENANCE OF AUTO APPARATUS.

We commend to the attention of all fire departments the following quotation from the report of Chief Bowker of Passaic, N. J.:

With the exception of the auto apparatus located in the quarters of engine company No. 6, and also the assistant chief's car, all the apparatus is in excellent condition. This is no doubt due to the fact that upon the slightest appearance of any parts showing sign of wear, and likely to become broken, the apparatus is immediately sent to the Fire Department repair shop, and defective parts are put in first class condition, thereby saving a complete breakdown which would undoubtedly cost considerable money. All this repair work, and also the machine shop is under the supervision of the master mechanic, Captain P. Spencer Pearl, and the assistant master mechanic, Lieutenant Alvin Thieme.

The department has in service a chief's and an assistant chief's car, 5 combination chemical & hose, 1 pumping engine, 2 hook and ladder trucks with tractors and a supply car, all auto apparatus.

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CHANGE OF ADDRESS
Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for. Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

SEPTEMBER 9, 1915.

CONTENTS

	Page.
Purchasing and Distributing Supplies in Cleveland. (Illustrated.) By A. R. Callow.....	391
Refuse Collection in Augusta.....	394
Street Sweeping in Boise.....	394
Calgary's Municipal Street Railway. (Illustrated.) By W. E. Hardenburg.....	395
Signal Box Records.....	397
Cleveland Municipal Light Plant.....	398
Maintenance of Auto Apparatus.....	398
One-Man Government.....	399
Toll Roads in Pennsylvania.....	399
Short Ballot for New York State.....	400
Paving Brick Makers Organize.....	400
Augusta's Fire Department.....	400
The Week's News. (Illustrated.).....	401
Legal News—Notes of Recent Decisions.....	407
Municipal Index.....	408
News of the Societies.....	411
New Appliances. (Illustrated.).....	414
Industrial News.....	415
Personals.....	416
Contract News.....	417

One-Man Government.

Probably no opinion concerning the government of United States cities has been referred to so often as that of James Bryce, stated in his "American Commonwealth," that the government of the cities of this country is (or was at that time) the one conspicuous failure of our democracy; and probably no other criticism has so effectively spurred us to improve our city governments. That there has been a revolutionary improvement must have impressed itself upon all who were familiar with the old conditions. A few days ago ex-senator Elihu Root, for half a century a shrewd student of American politics, stated that our city government "has gone far toward redeeming itself and us from that disgrace," and that it has done so by the concentration of power and responsibility in a few individuals.

If an office holder can evade responsibility for acts deservedly unpopular, and does not receive the voluntary praise of the citizens for faithful and wise service because the power and responsibility for such acts are not attached to any one official, then all incentive to unselfish service of the people is lacking except the satisfaction furnished by consciousness of duty performed. On the other hand, there have been numerous instances of men whose aims and character were not the highest being so changed by a realization of grave responsibility confided in them by the people as to make excellent records as public servants. These two considerations alone would suffice to explain the results obtained by the definite fixing of responsibility for a government on a few officials.

A favorite objection to such a policy is expressed by the common saying "Two heads are better than one." But a wise administrator of any considerable trust will consult with well chosen advisors, and thus secure the benefits of the wisdom of many heads. Every president of this country, probably every mayor of a large city, relies more or less on such advisors. Some of these are heads of departments, some are unofficial. When the department heads are not consulted because of entire absence of sympathy between them and the mayor, we have friction in the government and the city's interests suffer. If all power is placed in the mayor, including the appointment of these department heads, the possibility of this friction is eliminated.

An illustration of the wise use of unofficial advisers is offered by the appointment, by the borough president of Manhattan, New York, of "borough advisory commissions." The borough has been divided into sixteen sections, and a commission of twelve or more citizens in each section has been appointed "for the purpose of co-operation with the borough president in efforts to give him the best sentiment of their respective communities upon matters having to do with the welfare of the people living in the districts covered by such commissions." They are expected to make voluntary suggestions as well as to give advice when asked, and, if thought advisable, to call public meetings of the citizens of a district, after the manner of the New England "town meeting."

Far from being "undemocratic," government by one man conducted in such a manner would be infinitely more democratic than that by a multitude of office holders, elected by the people but feeling their chief responsibility to be to the party boss—a one-man ruler whose advisers have at interest the good of the party (or rather, of the few politicians who dominate it) instead of, and frequently in opposition to, that of the citizens and taxpayers. As Mr. Root said in effect, the old system was one-man rule, with that man self-appointed. The new and better way is one-man rule, with the man owing his power and recognizing his responsibility directly and solely to the voters.

Toll Roads in Pennsylvania.

A few generations ago, when it was more difficult than now to raise money for public roads, toll roads were quite common in many states, being the only method which seemed practicable for securing needed highways without raising public funds for the purpose. We remember being informed only thirty years ago that it was impossible to enter or leave the city of Albany, N. Y., without paying toll to either a road or a bridge company.

During the past twenty years or so, however, the states, counties and cities have realized the bad features of this practice and have bought or otherwise acquired most of these roads and bridges and thrown them open to the public.

In a recent address at Columbia, Pa., R. J. Cunningham, state highway commissioner of Pennsylvania, termed toll roads "an emblem of the dark ages"; but there are 628 miles of them in that state, 432 of which are on state highway routes. Four years ago there were an additional 89 miles, which have been taken over by the State Highway Department. Preliminary negotiations for the purchase of eleven additional turnpikes have been begun by the department but, although the legislature has given it the authority, it has not provided the funds for taking them over, and the department is asking for financial assistance from municipal corporations and all others interested to enable it to free the state from "the obnoxious toll road."

SHORT BALLOT FOR NEW YORK STATE.

The short ballot idea has been adopted by the convention which is preparing a new state constitution to be submitted to the voters of New York state next November. After debate extending over several days, the delegates voted, 124 to 30, to reduce the number of elective state officials from seven to four. The vote also reduced to 17 the present 152 "outlying commissions and agencies of state government, big and little, lying around loose, accountable to nobody, spending all the money they can get, violating every principle of economy, of efficiency, of the proper transaction of business," as they were described by Elihu Root. The governor is given full responsibility for results by placing in his hands the power to appoint and remove all heads of departments without concurrence of the senate.

The proposed change is revolutionary for this state, and would be for most others. The change for the better consists not only in reducing the number of elective officials, but also in making appointive rather than elective those offices calling for technical or professional services, such as the state engineer. It does not need an analysis of the present public service to appreciate, also, that the consolidating of 152 departments and bodies into 17 will effect an enormous reduction in the number of clerks and other assistants as well as of high-salaried political (figure) heads of departments and commissions.

The general idea of this form of state government was admittedly suggested by the modern forms of city government which are being adopted so widely in this country. Said Elihu Root, in an address before the convention advocating the short ballot: "Twenty years ago, when James Bryce wrote his 'American Commonwealth,' the government of American cities was a by-word and a shame for Americans all over the world. Heaven be thanked, the government of our cities has now gone far toward redeeming itself and us from that disgrace, and the government of American cities today is in the main far superior to the government of American states."

"I challenge contradiction to that statement. How has it been reached? How have our cities been lifted up from the low grade of incompetency and corruption on which they stood when 'The American Commonwealth' was written? It has been done by giving power to the men elected by the people to do the things for which they were elected."

Mr. Root stated later on that, during the forty years of his intimate acquaintance with New York politics, the state has always been run by one man, the "boss" of the party in power, and the proposed change is but taking this power from the state boss and giving it to the governor, the former self-imposed upon the people, the latter elected by them.

This constitution, if adopted by the people, will apparently give to the governor more power in the state than has ever been given to any elected official in any city, we believe.

PAVING BRICK MAKERS ORGANIZE.

A number of the manufacturers of paving brick have organized a society called the Institute of Paving Brick Manufacturers, a constitution and by-laws having been adopted at a meeting at Canton on June 29th. The next meeting will be held at Alton, Ill., on September 22nd. The object of the society is to make a "more intensive practical study into brick making problems" than seemed practicable for the National Paving Brick Manufacturers' Association, which deals more with the use of the brick in making pavements. The two organizations are in no sense competitive.

All active members must be actively connected with a reputable company manufacturing paving brick. For associate membership, men may be admitted who are engaged in furthering the interests of the paving brick industry, even though they are not brick makers. An honorary membership is reserved for those whom the institute chooses to honor for reasons satisfactory to itself. The dues of an active member are \$20 a year, while an associate member pays \$5 for each meeting attended.

Officers must be active members, no two identified with the same concern. Regular meetings are to be held quarterly, an important feature of which will be inspection of plants. A cordial invitation is extended to every paving brick manufacturer to attend the Alton meeting. Full particulars may be obtained from secretary Robert Kephlinger, of the Metropolitan Paving Brick Company at Canton, Ohio.

AUGUSTA'S FIRE DEPARTMENT.

During 1914, the fire department of Augusta, Ga., responded to 455 alarms as follows: Bell, 323; telephone, 122; verbal, 2; out of town, 8. The total loss due to these fires amounted to \$77,521.19, of which \$75,325 was covered by insurance.

The city recently accepted from the contractors a new double fire station especially built for motor apparatus and during the year made improvements on three other fire houses. Motor apparatus, including a motor pump and a combination hook and ladder truck, has been added as well. Chief Reynolds has recommended the purchase of more motor apparatus.

Apparatus now in service includes three steamers (LaFrance, Button and Silsby), all second size, one Webb auto engine and hose wagon, one Seagrave hook and ladder truck, a Holloway chemical engine, two hose wagons, two motor chemical and hose, a horse drawn combination and a chief's car. In reserve there are a 75-foot Babcock aerial, a wagon and a hose reel. The force consists of 73 men as follows: Chief, assistant chief, second assistant, secretary, mechanical engineer, 2 engineers, mechanic, 7 captains, 8 assistant captains, 2 chauffeurs, 35 privates, a carpenter, a painter, a plumber and 5 substitutes.

The department also maintains a repair shop in which all apparatus is repaired. The mechanical engineer has charge of repairs on hose and horse drawn apparatus while the mechanic has charge of the motor apparatus. The mechanics are required to work at fires the same as other members of the force.

Weekly inspections of all buildings in the business district are made by one of the captains. This has met with the co-operation of the owners and tenants generally and has given good results. Other captains inspect regularly moving picture shows, hotels, factories and other buildings. All wiring is rigidly inspected with a view of eliminating, if possible, the defective work which from time to time has been put in. In this work the inspector is handicapped by the fact that in many cases the existing building laws are not sufficiently elastic or explicit. During the year 1,326 building permits were issued.

FORMAL OPENING OF MONTEBELLO FILTERS.

The Montebello filter plant of Baltimore, Md., described in our issue of April 22d, is to be formally opened at 11 o'clock in the morning of Monday, September 13th. There will be music by the municipal band and addresses by the mayor, members and engineers of the water board and others, followed by an inspection of the plant.

The WEEK'S NEWS

Six Millions for Iowa Roads—State Highways in Colorado—New Auto Regulations in Pennsylvania—Scranton's Sewerage System—Trenton Will Eliminate Electrolysis—Monroe, Wis., Waterworks Profitable—Rates Reduced in Fort Worth, Texas, Kokomo, Ind., and Council Bluffs, Ia.—Elizabeth's New Fire House—Trenton's Tax Board Legal—San Francisco's Bonded Debt—Jitney Regulation—Cities Sue for Flood Damage—Rochester's Art Commission.

ROADS AND PAVEMENTS

\$6,000,000 for Iowa Roads.

Des Moines, Ia.—Iowa is spending this year \$6,218,823.10 on maintenance of the country roads, in addition to \$3,851,298.20 for bridges, according to the published report of F. S. Shaw, state auditor. In direct taxes the people this year are paying \$5,018,823.10 for roads. In addition, the state automobile tax, which is divided among the counties, amounts to about \$1,200,000, making a total of over \$6,000,000 available for roads. There are three road funds, the county, township and road dragging fund. The township road fund most affects the property owner. The taxes collectable in 1915 for the township road fund total \$2,528,138.57. Taxes collectable this year for the county road fund total \$1,594,385.43. The road drag fund totals \$896,299.10. In 1914 the state paid a larger sum for roads than in 1915. Last year the road taxes amounted to \$5,267,166.27, not including any of the state automobile tax. The sums were divided as follows: County roads, \$1,801,496.36; township roads, \$2,812,479.41; road dragging, \$653,190.50. In 1913 the state raised \$3,361,473.76 for roads. In 1911 the road taxes totaled \$2,723,868.49. In 1909 the state paid \$2,445,837.37 in direct taxes for road purposes. This year the counties will raise \$3,851,298.20 for bridges. Last year the fund was \$3,750,165.50 and the year previous \$2,932,959.62.

Improved Roads for Tennessee.

Nashville, Tenn.—The Tennessee highway commission is rapidly getting matters in condition for a vigorous and effective movement to supplant the present system of mud roads in Tennessee with modern highways of substantial construction and systematic planning. All sections of the state are evincing great interest in the commission and its work, and the campaign "to lift Tennessee out of the mud" will be given enthusiastic support. Secretary J. J. Murray of the commission is sending out information to all counties explaining the plan of the commission, and is holding conferences with good roads men from various parts of the state and highway officials in adjoining states. Kentucky has already agreed on plans for all roads which run into both states, and R. D. Knealey, highway commissioner of Fulton county, Georgia, and one of the state officials, have been discussing plans as to roads connecting Tennessee and Georgia. Tennessee occupies the distinction of being bounded on its four sides by eight states, and Secretary Murray is trying to get in touch with road officials in these states. The system for each state is to connect with county seats, and with every state adopting the same system the plan will result in a network of roads all over the country, connecting all cities of importance. The engineering department of the University of Tennessee is counted as one of the most valuable aids for this movement and insures scientific construction of the roads. The maintenance of the highway department is derived from the state auto tax law which levies a privilege tax on all motor-driven vehicles and traction engines. Ten

per cent of this revenue will be credited to this department for maintenance, as authorized by law, leaving 90 per cent of this fund to be distributed to each county in the same proportion as collected for the maintenance of public roads. A designated system of public roads will be established by the department after careful survey. These roads, when designated, will give each county intercounty and interstate communication.

State Highways in Colorado.

Denver, Colo.—Commissioner of Public Highways T. J. Ehrhart, states that over \$200,000 of state money is being paid out in Colorado counties this year for building and improving roads, and that next year the state road fund will amount to approximately \$800,000. The money is collected from all of the counties and from the federal government and is expended for road purposes in the counties which need it in practically the same proportion in which it is collected. Counties which pay taxes to the state road fund but which have only a few miles of roads within their boundaries, or no roads at all, will receive the benefit of their road taxes being expended in adjoining counties, as in the case of Denver, which is a city and county of itself.

Street Raising Work.

Pittsburgh, Pa.—The accompanying illustration shows a construction scene during the work of raising the street grades on Penn avenue. The work has involved some difficult problems. Cars have been kept running, while sewers and water pipes have been raised without interruption to the service.

Pennsylvania's New Auto Regulations.

Harrisburg, Pa.—The terms of the new act concerning the registration of traction engines and tractors have been misunderstood so much that State Highway Commissioner Cunningham has issued a circular letter to employees of the department explaining and interpreting the provisions of the act. The act, approved June 8, 1915, divides traction engines or tractors into two classes: First, those used exclusively for agricultural purposes, road grading and transporting the machinery and appliances, which, when



Courtesy, Pittsburgh (Pa.) Despatch.
RAISING PENN AVE., PITTSBURGH.

at rest, they operate with their own power; second, those used for freighting and hauling, which includes all hauling upon the public highways, except such as are specified in the first class. According to Section 10, Clause "G," of the act, it is necessary for engines of the second class to obtain a permit in addition to the regular license tag, but the department has interpreted "freighting and hauling," as used in this act, to mean that a regularly established route is being maintained by the operator of the engine, as, for instance, a teamster hauling logs from a logging camp to a sawmill, stone from a quarry to a crusher, or freight from a railroad station to the distributing point, etc. This interpretation gives the department power to prevent the destruction of highways by the continued use of traction engines which will tear them apart. Commissioner Cunningham has secured the co-operation of Major John C. Groome, superintendent of the state police, to have the state police instructed to report all violations of the automobile law which come under their notice.

Low Gravel Shipping Rate Aids Road Work.

Ottawa, Canada.—Application having been made, in the interest of the good roads movement, to the Railway Commission of Canada for an order requiring low commodity rates by railway companies for the transportation of gravel for use in road building by the municipalities of Western Ontario, the chief commissioner, after hearing the applicants and the railway companies decided that while the board can not order the companies to put in unremunerative rates, nor a rate so low as to be unfairly out of line with rates which are necessary to be maintained in order to permit the continuance of satisfactory operation of railways, the board urges upon the companies the advisability of recognizing a public interest and the benefits which would result to the companies themselves from a proper system of good roads. The railroads agree with the commission, and with the understanding that the rates offered are not to be regarded as indicating sufficient rates for similar commercial service, they will carry in the territory in question gravel that the municipalities require at a flat blanket rate of 50 cents per ton for any distance up to and including 50 miles, the rate to be a carload rate and cars to be loaded to their full stenciled carrying capacity; the gravel to be consigned to the clerk of the municipality and to be used for the purpose of road making; and the railway companies to be notified in advance of the number of carloads required, so that special instructions may be issued in each case. It is anticipated that 50 miles will be the maximum haul, but should municipalities at farther distances require the gravel the rate will be scaled down in the usual manner for greater distances.

SEWERAGE AND SANITATION

Federal Health Service Fights Trachoma.

Lexington, Ky.—Restoring practically helpless men and women to health and usefulness, saving children from possible blindness, and spreading the gospel of cleanliness and health and means of prevention of trachoma, are the results being obtained by the United States Public Health Service in the campaign in the Appalachian mountains of Kentucky, Virginia, West Virginia and Tennessee. During the fiscal year which ended June 30, 1915, the corps of doctors and nurses conducting this fight gave treatment to 13,139 patients at the three hospitals that were in operation during that time, and during the fiscal year that will end next June 30 this total will be largely increased, for a fourth hospital already has been opened and a fifth will be receiving patients and doing its share of this work before September 1. Dr. John McMullen, surgeon of the United States Public Health Service, has just completed his report for the work under his direction during the year to Surgeon General Blue. County officials have been aroused to the seriousness of the situation and the communities are willing to help. Virginia has agreed to appropriate annually an original appropriation to the proposed

West Virginia hospital and to increase this appropriation in time, and Kentucky has passed a bill requiring each county to hold a school for instructing doctors, health officers, nurses and midwives in the matter of the eradication and prevention of contagious eye diseases. The report shows that 11,934 patients visited the three service clinics during the last fiscal year and to these 13,139 treatments were given, all without cost to the patients. During that same period 1,067 patients were received in the hospitals and 1,048 were discharged cured, the other nineteen remaining in the hospital for further treatment and will be cured and discharged. The four hospitals in operation are at Jackson, London, Hindman, in Kentucky, and Coeburn, Va.

Scranton's Sewerage System Condemned.

Scranton, Pa.—In a decree received by Director of Public Works John G. Hayes, the entire sewage system of Scranton has been practically condemned by State Commissioner of Health Dr. Samuel G. Dixon. The decree directs that the city must keep separate its sanitary sewage system from its storm sewers, and that plants must be erected for the purification of sewage before it can be discharged into state waters. Director Hayes declared that if the decree is carried out the taxpayers of Scranton will be required to spend approximately \$5,000,000. The decree came as an answer to Director Hayes' repeated urging that the state department of health give its approval or disapproval to plans for a trunk sewer in the First, Second and Third wards, and also plans for a trunk sewer in the Twenty-first ward. Both sets of plans have been disapproved by Governor Brumbaugh, and Dr. Dixon, the director, was notified. The commissioner of health in his decree gives the city until October 1, 1916, to prepare and submit to the state department of health approval plans and outlines of the proposed sewage scheme for the entire area of the city, the plans to provide for future growth of the city and sewage treatment generally.

State Will Discharge Effluent into Lake.

Albany, N. Y.—Despite the protest of William Williams, commissioner of water supply, gas and electricity of New York City, that the drainage of the New York Training School for Boys at Yorktown Heights and the Mohansic State Hospital at Yorktown, if it is conducted into Mohansic Lake, as planned, will pollute Croton Lake, which furnishes part of New York City's potable water supply, the plans are to be carried out. The drainage plans for the training school have been approved by the state hospital commission, the conservation commission and the state health department, and bids for construction soon will be requested. The hospital drainage plans are now before the conservation commission and upon approval will go before the health department. In about ten days, in all likelihood, bids will be called for. Attorney General Woodbury has given the health department an opinion on the subject, in which he holds: "The city of New York cannot enjoin as a threatened nuisance, the construction of sewage disposal plants for state institutions on the Croton watershed after the state department of health has approved the plans therefor. Until their operation demonstrates the plants to be nuisances, the court is without jurisdiction to intervene." In conclusion he holds that the city of New York cannot at this juncture of the work intervene. The department of health, whose head is Dr. Hermann M. Biggs, asserts that the water supply of New York City will not be defiled by the sewage from these institutions after the treatment which it is to receive. In a letter to State Architect Lewis F. Pilcher accompanying the plans, Dr. Biggs says that the state health department considers Crom Pond the most suitable point of discharge for the properly purified effluent from the disposal works of the Mohansic Hospital, "under the same conditions imposed in the approval of the plans for a sewage disposal plant for the Yorktown Heights Training School for Boys." He goes on to say that while the institution is designed to house 6,000 persons ultimately, the intention is to provide for 1,500 only at the present time. The disposal plant, he says, will include coarse

screens, Imhoff tanks, and sand filter beds. There also will be chlorination of the final effluent with liquid chlorine at the point of its discharge into Mohansic Lake. This treated sewage, which, it is asserted, will contain no trace of poison, will flow from Mohansic Lake through streams to Croton Lake, from which part of New York City's water supply is taken.

WATER SUPPLY

Water Company Wins Litigation.

Hagerstown, Md.—In a decision handed down by Judge Robert R. Henderson, of Cumberland, the Washington County Water Company has won the "water right" which the city has opposed for the past five years. The victory was a sweeping one for the company. The city may take the case to the Maryland court of appeals. The judge decided the case upon the merits, as all the technical questions had been cleared away by the law struggles of the past four years. The battle was begun when Mayor Scott declared the company had no right to install meters. The suit is based on two contracts, one dated May 31, 1881, and one dated August 14, 1896. The bill charged that the company attempted to install meters in conflict with and contrary to its rights; that it is diverting water to other uses, and that its charges are in excess of its contract right.

City to Force Elimination of Electrolysis.

Trenton, N. J.—Following numerous complaints about damage caused by electrolysis from trolley rails to the property of the city and the taxpayers, the city commission has decided to take immediate steps to remedy the condition. It is estimated that the loss to the city and taxpayers has reached thousands of dollars. Improper construction of the roadbed and feed wires of the Trenton & Mercer County Traction Corporation is blamed for the damage. Experts have been employed by the city and their reports have been that the electricity used by the trolley company is not properly carried. The city commission has now determined to force the trolley company to properly repair its lines. Several different coatings have been placed on the water pipes in an effort to counteract the effect of the electricity, but none of these has proved successful, it is asserted. Among the preparations placed on the pipes have been asphalt, tar and liquids.

Waterworks Profitable.

Monroe, Wis.—The annual report of the Monroe city water department shows that the total receipts from this department during the past year were \$19,857.44, and the expenditures, \$9,060.47, showing a net operating income of \$10,796.97, or a little over \$2 per capita of population. As a result of the earnings of the department, \$4,000 in bonds have been retired during the year, while \$3,025 has been paid in interest on indebtedness, together with \$76.73 interest on accounts, while there has been allowed \$1,312.50 for depreciation and replacements, leaving a net profit to the city from the department of \$2,382.74 for the past year.

New Electric Pump Tested.

Providence, R. I.—The new electric pump recently installed at the Pettaconsett station has been given a test run. In seven hours it filled the Sockanosset reservoir when the test had to be temporarily discontinued. During the test, the pump averaged more than one million gallons per hour and noticeably lowered the river at the pumping station. Providence consumes about 18,000,000 gallons per day, while the new pump has a capacity of 30,000,000 gallons. Recent report of the waterworks department shows that the net earnings for the year ending June 30, 1915, after deducting the operating expenses, interest on waterworks bonds, and allowing for depreciation, was \$65,175.68. During the past year there have been laid 1,272 feet of 20-inch water mains, 1,836 feet of 16-inch main, 4,800 feet of 12-inch main, 1,140 feet of 10-inch main, and 2,487 feet of 8-inch main. In addition to this, there have

been laid enough 4-inch and 6-inch mains to bring the total up to 22,486 feet, or 4.25 miles of mains added to the system during the past year, at a cost of \$34,625.71. Other expenditures, such as by-pass at intake, hydrants, etc., bring the total cost of additions to plant and equipment for the past year up to \$40,249.54. About 60 per cent of the reinforcing mains as recommended by Engineer C. B. Stewart have been laid, leaving a balance of about 40 per cent, or about 17,200 feet of mains, which will cost approximately \$37,977. As soon as this work is done, it is probable that there will be a reduction in the water rates.

STREET LIGHTING AND POWER

Rate Reduction in Fort Worth.

Fort Worth, Tex.—Announcement has been made by the city commission that the electric light company had, at the request of the light commissioner, agreed to reduce its minimum charge for electricity from \$1 to 50c. a month, and that the reduction would become effective at the next regular collection day. This reduction will result in a saving to small consumers, of whom there are several thousand. Commissioner Crabtree conducted the negotiations.

Gas Rates Reduced.

Kokomo, Ind.—The Kokomo Gas Company has been authorized by the public service commission at Indianapolis to adopt a new schedule of rates for artificial gas, ranging from \$1.10 a thousand cubic feet to 85 cents a thousand, with a minimum of 50 cents a month. The commission's order says the new rates are a reduction from former ones. At the same time the commission authorized the municipal lighting plant at Rensselaer, Ind., to file a schedule of lighting rates with the commission, which ranges from 8 cents a kilowatt-hour to 4 cents a kilowatt-hour, with a discount of 10 per cent for prompt payment.

Large Extension of Hydroelectric Power.

Toronto, Ont.—It is authoritatively announced that the Ontario hydroelectric power commission is about to submit to the Ontario government plans for the development of the remaining 6,600 second-feet of water available at Niagara Falls under the treaty and the additional power obtainable from the spillways of the Welland canal to the total extent of 250,000 horsepower, of which 100,000 horsepower is to be developed as early as practicable. The entire development proposed would cost some \$10,000,000 and require three years for its completion. The work will be financed by the province for the benefit of the municipalities, which will be responsible for the outlay incurred in providing additional power. Last May it was found that the commission had nearly exhausted the 100,000 horsepower obtained from the Ontario Power Co. at a cost of \$9 a horsepower, and that it would soon be necessary for the commission to contract for additional power or build its own generating plants.

New Light Rates.

Council Bluffs, Ia.—Formal announcement has been made by the Citizens' Gas & Electric Company, through its president, George H. Harries, to the city council of a reduction in rates for Council Bluffs. The reduction, it is estimated, will save the consumers \$14,000 per year. The reduction follows a similar reduction in Omaha, reached after a long investigation by the city council and commercial club committee in conjunction with the city council there. The schedule submitted by the company proposes a reduction of approximately 23½ per cent in current rates, with a minimum charge of 50 cents per month to cover fixed cost charges for installation and maintenance of service, meter-reading and bookkeeping. Under this monthly minimum of 50 cents, a customer who uses in excess of six kilowatt hours per month is not affected, in so far as a minimum payment is concerned. Six kilowatt hours cost him 50 cents; under the old rates

the same amount of current would cost 63 cents net. The general lighting rate, for service based on a single-phase sixty-cycle alternating current of 106 or 212 volts, for all lighting and for small motors up to one horsepower and for small domestic appliances, varies from 8 cents per k.w.h. for the first 25 k.w.h. up to 2.5 cents above 7,000. The retail rate for alternating current for power, for three-phase, sixty-cycle current carrying standard voltages for motors greater than one horsepower, varies from 7 cents for the first 50 k.w.h. up to 1.5 above 10,000.

Merger of Power Companies.

Bethel, Vt.—Arrangements have been completed for the consolidation of some of the largest electrical companies in Vermont. The combination will include the Hortonia Power Co., whose headquarters are in Rutland, and the Gaysville Electrical Light & Power Co., whose headquarters are at Bethel. Over \$500,000 will be expended in modernizing the plants already owned and in developing water privileges already secured. A line will be run from the present plant of the Hortonia company at Brandon over Rochester mountain to Gaysville, 28 miles distant. At Gaysville, connection will be made with the water-power plant of the Gaysville Electric Light & Power company. A few years ago the Gaysville company absorbed the Bethel Electric Light & Power company and is now owner, in addition to its water power plant at Gaysville, of a water power in Royalton about one mile below Bethel village, and a steam auxiliary plant at Bethel. The Gaysville company has been supplying from these three plants, all linked together, lights and power at Gaysville village, Bethel village, Randolph and granite works. The Brandon plant is water power with steam auxiliary and is capable of developing 1,000 horse power. The Hortonia company has just bought a water power privilege situated in the town of Tinmouth, about 13 miles from Rutland, capable of developing with the proper storage over 10,000 horse power. About two thousand acres of land can be flooded by a dam built in a narrow gorge at the outlet of the valley. This dam will be about 30 feet high, 200 feet thick at base, tapering to 50 feet at top. With a penstock 1,500 feet long, a head of 420 feet can be secured. The chief promoter of the new project is I. M. Frost.

FIRE AND POLICE

Chemical Accepted.

Fellsmere, Fla.—Following a demonstration by fire chief Chase of Miami, the commissioners have formally accepted the new chemical fire engine recently purchased. During the demonstration the members of Volunteer Company No. 1 were thoroughly instructed and drilled in the operation of the machine.

New Police Patrol Auto.

Albany, N. Y.—Albany's police department now has a new Cadillac automobile patrol. Commissioner Erving of the department of public safety having just had it delivered. The new patrol is an eight cylinder 70-horsepower machine and it performed well in several test runs. The car can carry 25 passengers. A stretcher is attached to the side, to be used in case of accidents.

New Combination Successful in Tests.

Perth Amboy, N. J.—Perth Amboy's first automobile fire apparatus, a Boyd combination hose, chemical and pumping apparatus, has been received and tested. It was driven from New Brunswick to this city by mayor Ferd Garretson. The engine, 6-cylinder, develops 110 horsepower for either driving or pumping and is designed to give a maximum speed of sixty miles an hour. The water pump is very powerful. The machine is fully equipped, including self starter, electric lights, search light, large bell, lanterns, ladders, etc. The machine worked perfectly at the tests which Chief Tooker and Chairman John W. Kelly of the fire committee conducted.

Combination Received.

Old Orchard, Me.—The new combination motor fire truck ordered by the town of Old Orchard has arrived and is now housed at Central fire station. The truck was bought from the Abbott Fire Apparatus company of Boston. The machine is up-to-date and imposing and is equipped with chemical tanks, ladders and carries a large amount of hose.

Combination Received.

Ocean Grove, N. J.—The Brockway automobile combination chemical and emergency fire patrol purchased at a cost of \$3,000 about two months ago by Washington Fire company No. 1, has been delivered by the American-La France company. The machine is equipped with all the latest appliances. A complete set of first aid remedies will be carried. This apparatus, purchased by the members of the company, will replace the old horse-drawn hose wagon which has done service for a great many years.

New Combination Passes Good Test.

Allentown, Pa.—The fine combination pumping engine and chemical engine, recently bought by the city from the Webb Co., was given a severe test in which it exceeded not only the requirements exacted by the city but also the expectations of the officials of the fire department. The test was conducted by fire chief Kranzley and the pump delivered 775 gallons per minute. There is a 40-gallon chemical tank on the engine and 1,000 feet of hose can be carried.

New Apparatus Received by Indianapolis.

Indianapolis, Ind.—The board of safety has received a new combination ladder and chemical motor truck from the Seagrave Company, Columbus, O. The new truck will be placed in service at engine house No. 11 and will take the place of the old horse-drawn ladder truck of truck company No. 4. The old truck was traded in on the new one. The fire department has also received two motor ladder trucks from the Kelly-Springfield Motor Company, Springfield, O. The city has still to receive a combination engine and pump and three tractors of the apparatus ordered some weeks ago. J. Harry Johnson, fire chief, has had two motor hose wagons built in Indianapolis. Chasses were bought from the Brown Commercial Car Company and bodies were built by a local wagon maker.

New Firehouse Completed.

Elizabeth, N. J.—Engine Company No. 5's new firehouse, which is probably the finest single company house in the city, has been completed and is ready for occupancy, just one year from the date ground was broken. The new structure is 36 by 60 feet and is about 30 feet high. The out-



Courtesy, Elizabeth (N. J.) Journal.

ELIZABETH'S NEW FIRE HOUSE.

side walls are entirely of red brick, while inside the walls are of white brick and tile. There will be three sliding-poles in the building and accommodations for 16 men, although there are only 6 firemen in the No. 5 company. In the rear there is a high tower for the drying of hose. The house is so constructed as to accommodate a double company, but, for the present, only Engine Company No. 5 will be quartered there. Shower baths and other features will add to the comfort of the firemen. The deputy chief will have a private room and also the captain of the company.

GOVERNMENT AND FINANCE

Officials Indicted.

San Leandro, Cal.—J. J. Gill, mayor; J. F. Peralta, town marshal, and four trustees of the town of San Leandro have been indicted by the Alameda County grand jury, charged with unlawful acts in transacting official business. Mayor Gill is alleged to have sold the town an insurance policy on an automobile, and to have made a profit of \$11.

The Recall at Work.

Munising, Mich.—Petitions for the recall of Thomas G. Sullivan, mayor of Munising, are being circulated and it is said that the required signatures, 25 per cent of the total vote cast for governor at the last election, have been secured. The recall petitions charge that certain of Mayor Sullivan's appointees are incompetent, that gambling is countenanced and that the mayor's policy is a "wide open" one. Munising adopted the commission form of government last winter and Mayor Sullivan was elected for three years. Under the charter he could not be recalled for six months after election.

Property Owners Lose Veto Power Over Tracks.

Columbus, O.—That the property owners consent law can be overridden by a city charter and that in cities having such a charter provision the council may grant franchises for street railroad tracks over the most exclusive avenues and boulevards regardless of the wishes of the owners of abutting lots was held by the supreme court in two decisions of cases from Cleveland and Cincinnati. The court held that, in spite of the consent law, the Cleveland Railway Company may lay tracks on that part of Euclid avenue known as "Millionaire Row." But the court held that the Cincinnati Traction Company could not build an extension of its Avondale line because it had not obtained the consent of the owners of a majority of foot frontage. The Cleveland charter practically repeals the consent law. Cincinnati is not a charter city. Two members of the court, Judges Wanamaker and Donahue, who dissented from the majority opinion in the Cincinnati case, contended that the home rule amendment to the constitution had repealed the consent law, even for cities which have no charter or for charter cities, like Columbus, whose charter does not run counter to the consent law.

Trenton's Tax Board "Legal."

Trenton, N. J.—That Trenton's board of tax assessors is legally constituted is the opinion of Judge Marshall, who has rendered an opinion confirming the paving assessment of Stuyvesant avenue. While eight objections were entered against the confirmation of assessment the principal claim was that the members of the Board of Assessors were illegally appointed and their acts were invalid. If the claim of the objectors had been sustained many streets in the city that were assessed by the present board would have been affected. While the Walsh act provides for a board of five members, the city commission appointed only four members, leaving a vacancy which had not been filled up to the time the Stuyvesant avenue matter was brought to the attention of the court. Subsequently one of the four assessors died and created another vacancy which also remained unfilled. The objectors contended that the Board of Assessors was illegally constituted in that it only consisted of three members when the law requires five, and that they were only given

the benefit of the judgment of three members when they were entitled to the judgment of five members. The court held that the objection was not sufficient to defeat a confirmation of the report and that the assessment must be confirmed.

San Francisco's Bonded Debt.

San Francisco, Cal.—Auditor Boyle reports that the net bonded indebtedness of the city at the end of the fiscal year, June 30th, amounted to \$42,635,800, and that since then bonds of various issues amounting to \$1,011,000 have been redeemed, leaving \$41,624,800 outstanding. This takes in the exposition bond issue, which is not included in the limit of 15 per cent of the city's assessed valuation that is fixed by the charter as the measure of its bonded indebtedness. The bonds outstanding June 30, 1915, are listed as follows:

County Jail and Hall of Justice	\$ 104,400
Golden Gate Park Extension to Presidio	246,000
Library	803,100
Mission Park	219,000
Playground	555,000
School	710,100
Sewer	181,200
Street	567,000
5 per cent—	
Fire protection	5,200,000
Garbage system	680,000
Hall of Justice	850,000
Hospital	1,800,000
School	4,800,000
Sewer	4,000,000
4½ per cent—	
Hospital and Jail	683,000
Polytechnic High School	550,000
Geary Street Railway	1,900,000
Market Street Railway	75,000
Water supply, Hetch-Hetchy	1,606,000
5 per cent—	
City Hall	8,800,000
Exposition	4,806,000
Municipal Railway	3,500,000
Total	\$42,635,800

RAPID TRANSIT

Jitneys Lose.

Richmond, Va.—Judge E. H. Wells of the Richmond Hustings court, has dissolved the temporary injunction against the enforcement of the Richmond council's ordinance regulating jitneys. The chief object of attack on the part of the jitney interests was the clause requiring a bond for those operating jitneys, but the amount is below that required by the Richmond ordinance. Attorneys for owners will carry the case to the state supreme court of appeals and if they lose there probably to the United States Supreme Court.

Jitney Regulation.

Springfield, Ill.—Commissioner Roy R. Reece's ordinance for the regulation of jitneys has been passed by the city council. The measure provides that any violation of the ordinance will be treated as a misdemeanor and the violator subject to a fine of not less than \$5 or not more than \$200. Operators will have to give at least \$5,000 bond to hold them liable for any judgments rendered against them, pay a license fee of \$5 to carry five passengers, and see that the drivers of the cars have permits from the mayor before they will be allowed to operate in the city. The ordinance fixes \$5,000 as the minimum amount of bond, to be increased \$500 for each extra passenger to be carried. The bond must be approved by the commission. The cars must be run for six hours per day. Operators must file with the city clerk information giving the number of passengers to be carried, the names of the streets which are to be traversed and location of the termini and transfer points, if any. Jitney busses will not be allowed to stand for an unreasonable amount of time in the streets, except at the termini where they are allowed to wait five minutes for taking on and discharging passengers. They will have to stop seventy feet from sidewalk lines.

Lockport, N. Y.—The common council has passed the jitney ordinance of Alderman Lambert requiring that operators secure permits from the city to use the streets in the same way as any other public transportation company and in the event of the failure to do so, they are subject to

a fine of \$100 or six months in jail. The International Railway Company has complained to the Public Service Commission that a bus line was running in opposition to its Olcott road. Proceedings are brought under the recent State jitney-bus law requiring operators of such lines charging a fare of fifteen cents or less in competition with a common carrier to obtain the consent of the local authorities or to procure a certificate of public convenience from the commission.

Jitneys and Street Cars in Vancouver.

Vancouver, B. C.—In the evidence submitted recently to an arbitration committee appointed to consider questions in controversy between the British Columbia Electric Co., which controls the street railways and electric lighting in Vancouver and suburban municipalities, the following figures concerning investments, earnings, etc., of the company were submitted by the management: The statement shows that the capital increased from \$7,000,000 in 1906 to \$9,000,000 in 1908, and by steady progression to \$46,000,000 in 1914. This was for all the British Columbia Electric Railway enterprises, including the light, gas, and power companies, and represented actual cash subscribed by debenture and shareholders. An even greater sum—\$47,300,000—has been spent in the company's undertakings in British Columbia. The biggest dividend paid was in 1908, when on a capital of \$9,000,000 the company had earned in the previous year 7.82 per cent. In 1913-14, on a capital of \$46,000,000, the company earned 4.69 per cent, and in 1914-15, 2.76. Since then there have been no profits, not even enough to pay interest on the debentures. One of the principal reasons offered by the company for the heavy decrease in earnings was the introduction of jitney busses, which has seriously affected the earning capacity of the property by dividing the traffic, more passengers being carried now by the motor vehicles than on the trams.

MISCELLANEOUS

Municipal Potato Crop.

Palo Alto, Cal.—Palo Alto has harvested a \$360 potato crop under the direction of City Engineer J. F. Byzbee; 200 sacks is the estimated crop. Palo Alto has a strip of land between the Southern Pacific Railroad track and the state highway which was planted in potatoes and grain this spring. The grain was harvested several weeks ago.

Cities Sue for Flood Damage.

Memphis, Tenn.—In suits filed simultaneously in the federal courts at Little Rock and Memphis, the city of Memphis asks \$2,000,000 damages for the alleged destruction of water and sewerage systems, damage to streets and highways in recent Mississippi river floods. The actions are directed against the board of directors of the St. Francis Levee district of Arkansas, the Kansas City & Memphis Bridge Company and the receivers of the St. Louis & San Francisco Railroad. It is alleged that the levee and dikes constructed by the defendants on the Arkansas side of the river from Point Pleasant, Mo., to Helena, Ark., have increased the high water at Memphis more than eleven feet above what it was before the embankments were built. Claims are made that the levees, which have been strengthened and made higher since 1910, interfere with the natural flow of the river in its high water course, resulting in unnatural floods on the Memphis side of the stream, which have overflowed a large portion of North Memphis.

City in Mineral Water Business.

San Jose, Cal.—Permission has been granted by the council to L. W. Bush, publicity manager of Alum Rock park, to bottle and market surplus mineral water going to waste at the park. The park board has thoroughly considered the proposition and propose to handle the water through a local depot or agency. The water is to be placed on the market at a lower figure than any mineral water sold and the proceeds will solve the constantly recurring

financial problems of the park board. At a low cost a carbonating plant is to be put in at the park and two men be put at work bottling for an hour a day. This would not necessitate the employment of further help at the park. The proceeds of mineral water sale will, at the outset total about \$252 a month, he stated it is estimated. Reports have been received from the state laboratory at Berkeley, where samples have been sent for analysis, stating that the Alum Rock park water is better balanced for medicinal purposes than any ever analyzed by the state. Labels to this effect will be placed on all mineral waters marketed by San Jose. Mr. Bush calls attention to the handsome revenue derived by the Shasta water people from their mineral water, totaling about \$30,000 a month. Figuring conservatively, he stated, the local water business could be built up to a total of about a thousand dollars a month.

Vacant Lot Gardens Successful.

Toronto, Ont.—Through the efforts of the Rotary Club, of Toronto, 130 vacant city lots have been secured and turned over to needy families for the raising of vegetables. Already 96 families and 432 persons in all have been benefited by this movement. So pleased were the mayor and councilmen with the results that it is likely that lots at the disposal of the municipal authorities will soon be used for growing vegetables for the poor of Toronto. Owing to the over-speculation in town lots and in laying out unnecessary additions to the city, Toronto has many acres of land within the corporate limits that could be profitably used to aid needy people.

Art Commission for Rochester.

Rochester, N. Y.—Two former mayors of Rochester, James G. Cutler and George W. Aldridge, have been appointed members of the new Municipal Art Commission by Mayor Hiram H. Edgerton. James S. Watson, president of the Security Trust Company and one of Rochester's most prominent citizens, and George L. Herdle, artist in charge of the Memorial Art Gallery, are the other members of the commission named by the mayor. The mayor, by virtue of his office, is the fifth member of the commission. The bill creating the art commission was drafted in the office of the corporation counsel by direction of Mayor Edgerton and was enacted into law by the legislature of this year. It provides that one of the commissioners must be an architect and one must be appointed from a list of not less than three persons engaged in the practice of fine arts submitted by the board of directors of the Memorial Art Gallery of the University of Rochester. Power to appoint such subordinates as may be prescribed by the board of estimate and apportionment was given the commission by the legislature. No work of art can be acquired by the city without first being approved by the commission as to design or location. Judgment as to the altering of a work of art or to its location in a street, highway, park, building or any other place owned or controlled by the city must be passed by the commission. The term "work of art" applies to all paintings, mural decorations, stained glass, statues, bas-reliefs, tablets, sculptures, monuments, fountains, arches and other permanent structures intended for ornament or commemoration. Considerable power in respect to public structures is vested in the commission. No buildings, bridges, approaches, gates, fences, lamps or other structures can be erected upon city lands until the commission has approved the design. The common council has power to nullify this approval by ordinance. Private buildings, arches, bridges, approaches or lamps cannot be erected on or extend into or over any street, park or city property until the design has been approved by the commission. If the commission fails to pass upon any matter submitted to it within sixty days after submission, its decision becomes unnecessary. If the mayor certifies that the immediate removal or relocation of a work of art is necessary, the commission is required to make its decision in three days. The common council has authority to confer additional powers upon and prescribe additional duties for the commission with respect to approving as to form, material and color plan of work to be done.

LEGAL NEWS

A Summary and Notes of Recent Decisions—
Rulings of Interest to Municipalities

Street Improvement—Departure from Prescribed Procedure—Validity.

Osborn v. Stone.—Any radical departure from the method prescribed for the initiation of proceedings to improve the streets at the expense of owners of the property benefited will vitiate a contract let for such improvements.—Supreme Court of California, 150 P. R., 367.

Ordinances—Repeal.

Town of Hammond v. Badeau.—Where the violation of one of two municipal ordinances on the same subject would not necessarily be a violation of the other, the ordinance of earlier date is not repealed, unless the repeal be expressed in the ordinance of later date.—Supreme Court of Louisiana, 69 S. R., 202.

Defect in Street Negligence.

Jenkins v. Mayor and Council of Wilmington.—A depression worn in a flagstone crossing about one inch deep and about the size of an ordinary writing tablet, where water would lie from rain or melting snow, was not sufficiently dangerous to charge defendant city with negligence in allowing it to remain for four years under ordinary circumstances.—Superior Court of Delaware, New Castle, 94 A. R., 768.

Streets—Obstructions—Liability of City.

Malchow v. City of Leoti.—The defendant city had no right to permit its streets to be occupied by a merry-go-round, cable, engine, tank, baby rack, fuel and guy ropes, and such obstructions constituted a public nuisance rendering the city liable to a person injured thereby unless so careless as to be held responsible himself for such injury. Such use of the streets with the knowledge and assent of the city for the partial benefit of the commercial club amounted to an invitation to the public to patronize the attraction, and one who, in passing along the street thus occupied, stopped for from one to five minutes near the engine and was injured by the explosion of its lubricating glass, is entitled to recover unless it appear from all the facts and circumstances that he failed to exercise such care as ordinarily cautious and prudent persons would have used under like circumstances.—Supreme Court of Kansas, 149 P. R., 687.

Annexation of Territory—Apportionment of Property and Liabilities.

People ex. rel. Welch et al. v. Dunn et al., Board of Audit.—Laws 1914, c. 58, annexing certain territory to the city of Schenectady, provides in section 6 that debts, etc., against the school district, including such added territory, shall be apportioned between the city and the district in the same manner as between the city and towns of which a portion is added to the city, except that the city and the portion thereby annexed shall not be liable for a bonded debt of the district incurred subsequent to January 1, 1914, for the construction of a schoolhouse in the portion of the district not thereby included in the city. Section 7 provides that the title to real property of the district within the added territory shall vest in the city, and that the board of audit shall apportion to the city such personal property of the district as may be just. In November, 1913, the district schoolhouse within the territory not annexed to the city was destroyed by fire, and the district received \$16,000 of insurance on the building. Prior to such act it had dedicated this amount to the construction of a new building, and had provided for the issuance of bonds for an additional amount for this purpose. Held that, while personal property may consist of money, it was not intended to authorize the apportionment of the city of any part of such insurance money; it standing in equitable contemplation in place of the building.—Supreme Court, Appellate Division, Third Department, 104, N. Y. S., 346.

Pollution of Streams—Liability.

Luther et al. v. Village of Batavia.—A municipal corporation is liable in damage to a riparian owner for the pollution of a stream by its sewage, the same as a private individual would be.—Supreme Court, Appellate Division, Fourth Department, 154 N. Y. S., 784.

Obstruction of Street—Nuisance—Liability.

Politis et al. v. Times Square Imp. Co.—A company which erected a large loft building on the corner of a street, and in connection therewith and to be used as an adjunct thereto erected a smaller building upon a lot 20 feet wide on the next street, adjoining the premises occupied by plaintiffs' restaurant, which buildings were so constructed that the only freight entrance was through the narrow building, so that the sidewalks in front of its entrance and plaintiffs' premises were always incumbered by goods and vehicles, so as to interfere with access to plaintiffs' restaurant and injure their business, was not liable to an action to restrain the maintenance of a nuisance and for damages.—Supreme Court, Appellate Division, First Department, 154 N. Y. S., 466.

Bonds of Municipal Plant—Vote—Statutes—"Constructing"—"Acquisition."

Hartigan v. City of Los Angeles.—Where the proposition on the ballot, in an election to authorize the city of Los Angeles to issue bonds for a municipal improvement, stated that \$1,250,000 was to be used for the "construction or acquisition of electric generating works," such city was thereby authorized to use the sum for the completion of a partly constructed generating plant, since the language of the bond act, authorizing the city council, when it shall determine that the public interest or necessity demands "the acquisition, construction or completion" of any municipal improvement exceeding the city's annual income, to call a special election and submit the matter to the voters, does not necessarily imply that the acquisition of an improvement, or its construction, or completion, is each a separate and distinct proposition which must be submitted separately to the voters for their approval, and that money voted to construct improvements cannot be expended to complete an improvement already partially constructed, for the city would be "constructing" an improvement if it was engaged in the building of the unfinished portion of works already begun, and it could accomplish the "acquisition" of an improvement by buying an entire plant, by constructing a new one, or by completing one partially constructed.—Supreme Court of California, 149 P. R., 590.

Ordinance—Charter—Removal of Ashes—"Dwelling."

Mayor and City Council of city of Baltimore and Larkins, Com'r of Street Cleaning v. Hampton Court Co.—Baltimore city charter (Acts 1898, c. 123), while not intended to validate invalid ordinances, was intended to preserve and continue all municipal ordinances then in force in the passing of the corporation from the control of the old charter to that of the new as if the change had not been made; and the large financial powers thereby vested in the board of estimates did not empower it directly or indirectly to set at naught the performance of a duty imposed by ordinance upon any municipal department, so that where Baltimore City Code 1893, art. 48, Sections 187, 188, required the commissioner of street cleaning to remove coal and other ashes and to collect and remove garbage, etc., from the dwellings and other places in the city, a ruling or classification of the board of estimates that houses not more than four stories in height, and not having an elevator used for delivering purposes, should be classed as dwellings, and that the commissioner should remove the ashes therefrom, but that houses more than four stories, occupied by more than one family, should be classed as apartment houses with direction that the commissioner be governed accordingly, intended to relieve the city from the expense of collecting ashes from larger buildings, such as hotels, and apartment houses, was ultra vires and void, in so far as it was intended as a modification of existing ordinances.—Court of Appeals of Maryland, 94 A. R., 1018.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals.

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS.

Highways:

Classification of Roads. Classified according to governing authorities, administration, units of area and finance. By G. Montagu Harris. 7,500 words. The Surveyor, July 23. 40 cts.

Urban and Suburban Roads. Observations on road improvements and maintenance. By J. S. Brodie. 1,500 words. Canadian Engineer, August 26. 15 cts.

Some Phases of Road Improvement Work in Colorado. Information relative to the administration and financing of road work in Colorado. 1,500 words. Good Roads, August 7. 10 cts.

Ohio's Road Program. Contemplates improvements and continuous maintenance of inter-county highways totaling nearly 10,000 miles. System connects every county seat and serves directly all other important cities and villages. By A. W. Smith. 1 ill., 4,000 words. Better Roads and Streets, August. 15 cts.

Roads in Jackson County, Oregon. Gives cost of grading and summary of expenditures; the choice of pavement. By F. A. Kittredge, division engineer. 1,700 words. Pacific Builder and Engineer, August 21. 15 cts.

Condition Report on Philadelphia's Service Test Road. Describes test road built by the city of Philadelphia two years ago, describes signs used and gives composition and method of laying of various surfaces. By George D. Steele. Better Roads and Streets. 10,000 words. July. 15 cts.

The Low Cost Road. By Philip P. Sharples. 1,000 words. Municipal World, July. 10 cts.

Construction:

Equipment and Methods Used on a State Aid Road Contract in Pennsylvania. 3 ill., 1,000 words. Good Roads, August 7. 10 cts.

What Constitutes a Completed Job of Road Work. By A. McGillivray, Highway Commissioner for Manitoba. 1,500 words. Municipal World, July. 10 cts.

Road-Making in Warwickshire and Worcestershire. Description of two big reconstruction schemes. 6 ill., 1,500 words. The Surveyor, July 2. 40 cts.

Cutting a City Street Through a Railway Station. Connecting two dead end streets at Springfield, Mass., through a railway fill and partly under two railway stations. 11 ill., 1,800 words. Engineering News, August 12. 15 cts.

Philippine Road Built at High Level to Escape Flood Damage. Baguio-Bauang Route replaces the \$2,000,000 Benguet Road which involved excessive maintenance charges. 3 ill., 2,500 words. Engineering Record, August 28. 10 cts.

Convict Labor:

Convict Labor on Alabama Roads. Description of results obtained; some cost figures are given. 800 words. Good Roads, August 7. 10 cts.

Maintenance:

Road Maintenance. Maintenance of surfaced roads outside of city paved streets and not including city pavements. By Col. Wm. B. Sohler, chairman, Massachusetts Highway Commission. Continued from June issue. 4,000 words. Better Roads and Streets, July. 15 cts.

Tropical Road Maintenance Complicated by Floods. Philippine engineers discuss means of preventing erosion of surfacing during periods of inundation. 1,500 words. Engineering Record, August 21. 10 cts.

Maintenance and Repair of Asphalt Block Pavements. Notes on the practice of an experienced engineer and contractor. By E. J. Morrison. 8 ill., 3,000 words. Engineering News, August 19. 15 cts.

Road Maintenance Cost Keeping in Pennsylvania. An elaborate system of analyzing cost of highway maintenance; can be used in cataloging and indexing any road data. 2 ill., 2,100 words. Engineering News, August 5. 15 cts.

Maintaining Concrete and Brick Roads in Illinois. Methods and costs of repairing concrete and brick pavements on country roads; cost data. By B. H. Piep-

meier. 3 ill., 2,300 words. Engineering News, August 12. 15 cts.

Improvement and Maintenance of Highways in Connection with Modern Traffic Conditions. By C. F. Gettings, County Surveyor, Worcestershire. 4 ill., 4,500 words. The Surveyor, August 6. 40 cts.

Demonstration Road Maintenance on the Washington-Atlanta Highway. Shows the need of continued work, of more substantial road building and of better financial systems of counties. By E. W. James, chief of maintenance. 3 ill., 3,000 words. Manufacturers Record, August 26. 15 cts.

Asphalt:

Asphalt: Its Application in Road and Sanitary Work. Definitions of terms; principal deposits of bitumen and rock asphalt; tests for asphalt; application of surfacing; causes of failure. 4,500 words. Contract Record, August 11. 15 cts.

Sheet Asphalt Pavements. Grading of mineral aggregate; binder course; foundations; inspection. By Daniel T. Pierce. 6 ill., 2,500 words. American City, August. 25 cts.

Methods and Cost of Laying Asphaltic Wearing Surface on Concrete Pavement. Santa Barbara County, Cal. 5 ill., 2,500 words. Engineering and Contracting, August 18. 10 cts.

Repairing Asphalt Pavements without a Plant. Method used during the winter months in Spokane, Wash. By F. N. Blingham. 1 ill., 500 words. Engineering News, August 12. 15 cts.

The production of Trinidad and Bermudez Lake Asphalts. By C. M. Forrest, chief chemist, Barber Asphalt Paving Co. 14 ill., 7,500 words. Better Roads and Streets, August. 15 cts.

Bronx Borough Asphalt Plant. Description of municipal plant completed a short time ago; force employed at plant and on street; hauling material by horses and motor truck. 2 ill., 2,000 words. Municipal Journal, August 5. 10 cts.

Brick:

National Paving Brick Manufacturers' Association. The organization and its efforts to assist in the proper construction of brick streets and country highways. By George D. Steele. 14 ill., 6,000 words. Better Roads and Streets, August. 15 cts.

Extensive Road Construction in Florida. Method of laying brick on sand with cement grouting but no concrete base. By G. R. Ramsey, Highway Engineer. 5 ill., 1,000 words. Manufacturers' Record, August 12. 15 cts.

Some Costs of Brick Pavement and of Concrete Base at Gary, Ind. By W. P. Cottingham, assistant city engineer. 1,000 words. Engineering and Contracting, August 4. 10 cts.

Vitrified Brick Pavements for Country Roads. Features to be considered are drainage, firmness, uniformity in grade and shoulders. From a paper by C. H. Moorefield. 4 ill., 6,500 words. Contract Record, August 18. 15 cts.

Rattler Test for Paving Brick Abandoned in St. Louis. There has been substituted a standard sample of 100 brick by which shipments are to be judged. By Mont Schuyler. 1,200 words. Engineering Record, August 14. 10 cts.

Concrete:

Reinforced Concrete Roadways and Pavements. Use of reinforcement; advantages; amount of reinforcement to use. By B. S. Pease. 3,000 words. Contract Record, August 25. 15 cts.

Experiments in Reinforcing a Concrete Road. By F. J. Stinchcomb, county surveyor, Paulding, Ohio. Paper before Ohio Engineering Society and discussion. 6,000 words. Proceedings Ohio Engineering Society. 50 cts.

Essential Requirements in Concrete Pavements. Density; contraction and expansion; protection; subgrade. 1,300 words. Contract Record, August 18. 15 cts.

Perfecting Concrete Roads. The part that hydrated lime plays in assuring ab-

solute permanency to concrete. By Charles Warner. 2,500 words. Better Roads and Streets, August. 15 cts.

Washed Aggregate and Machine Finished Surface are Features of Michigan Concrete Road. High quality of aggregate permits change in specifications; comparative costs on surface finishing. 4 ill., 1,000 words. Engineering Record, August 7. 10 cts.

Laying a Forty-Foot Concrete Pavement in One Operation. 1,250 words. Better Roads and Streets, August. 15 cts.

Present Knowledge of Best Methods of Concrete Road Construction. First of a series of articles. This one relates to economic efficiency, character of constituent materials and their proportion. 3 ill., 2,500 words. Canadian Engineer, August 12. 15 cts.

Second in series. This deals with construction methods. 7 ill., 5,500 words. Canadian Engineer, August 19. 15 cts.

Third and last of series prepared from information on concrete roads given out by U. S. Office of Public Roads. This article considers methods, organization, equipment, cost and maintenance. 4,500 words. Canadian Engineer, August 26. 15 cts.

Bituminous:

Adequacy of Bituminous Roads. By G. H. Jack, county surveyor of Herefordshire. 1,500 words. The Surveyor, July 2. 40 cts.

Construction of Bituminous Macadam Roads. Gives specifications for natural lake asphalt, method of laying and construction of foundation and wearing courses. By George D. Steele. 5,000 words. 3 ill., Better Roads and Streets, July. 15 cts.

Tar, Pitch and Bitumen in Road Construction. From a paper by A. Dryland, county surveyor, Surrey. 1,700 words. Surveyor, August 20. 40 cts.

Bituminous Road Construction. By George C. Scales, senior highway engineer, Office of Public Roads. 2,500 words. Proceedings, Engineering Association of the South, April-June. \$1.

Asphalt Macadam Roads. Choice of type; causes of failure in macadam roads; good drainage is necessary. Large stone are desirable and the binding material is very important. By B. L. Field. 2,500 words. Southern Good Roads, August. 10 cts.

How Oiled Earth Roads Are Built in Kansas. W. S. Gearhart, State Engineer, tells how to get the soil ready, what kind of oil to use, how to apply it and the equipment needed. 3 ill., 1,000 words. Engineering Record, August 14. 10 cts.

Laying a New Bituminous Pavement at West Pittston. Methods, appliances and force employed by the contractor in laying National pavement; cost of hauling material seven miles by motor truck. 3 ill., 2,000 words. Municipal Journal, August 5. 10 cts.

Bitumastic Road Carpet from Destructor Clinker. Method of manufacture; cost. 750 words. The Surveyor, August 6. 40 cts.

Macadam:

New Macadam Specifications of the City of Philadelphia. Covers base course, surface, petroleum and asphalt derivatives, refined asphalt, asphaltic cement, tar derivatives, stone, etc. 1 ill., 7,500 words. Better Roads and Streets, July. 15 cts.

New Macadam Specifications of the City of Philadelphia, Pa. Illustrated. 3,500 words. Better Roads and Streets, August. 15 cts.

Laws:

Highway Laws of the United States. Digests of the laws governing the administration, construction and maintenance of highways in the several states. 30,000 words. Good Roads, August 7. 10 cts.

Synopsis of Important Changes in the Highway and Bridge Laws of Michigan. 4,500 words. Better Roads and Streets, August. 15 cts.

New Pennsylvania Law Taxing Tractors and Trailers. 1,500 words. Better Roads and Streets, August. 15 cts.

Miscellaneous:

Concrete Sidewalks. Methods of construction; proportions of materials; foundations; "dout's." By H. A. Rice, University of Kansas. 2,500 words. Kansas Municipalities, August. 25 cts.

Splitting of Concrete Sidewalks Surrounding Iron Posts. Some remedies are discussed. 1 ill., 1,200 words. Contract Record, August 11. 15 cts.

Construction of Integral Curbs. Method of pouring curb and pavement in monolithic mass, whereby the cost of the improvement is materially reduced. By Charles E. Russell, city engineer, Highland Park, Ill. 2 ill., 1,200 words. Contract Record, August 11. 15 cts.

Planning City Streets. Editorial, 1,100 words. Municipal Journal, August 5. 10 cts.

Practice Relating to Patented Pavements in American Municipalities. Specifying and adopting specifications for patented pavements and methods of calling for bids thereon. 11,000 words. Engineering and Contracting, August 11. 10 cts.

Pavement Width and Crowns. From a paper before Illinois Society of Engineers and Surveyors by H. I. Fixmer. 1 ill., 1,500 words. Contract Record, August 11. 15 cts.

Relative Twenty-Year Economy of Various Types of Roads and Pavements. Considers initial cost, yearly maintenance, life and renewal charge. 3 ill., 6,000 words. Engineering and Contracting, August 4. 10 cts.

Heavy Traffic on Roads and its Regulation. Discussion of the weight on roads and its distribution on axles. From a paper by E. J. Elford. 2,500 words. Canadian Engineer, August 5. 15 cts.

Trench Openings and Reinstatements. Discusses remedies. By Reginald Brown. 1 ill., 2,500 words. The Surveyor, July 23. 40 cts.

Influence of Roads Upon Economic and Social Conditions. Gives examples of increased traffic on roads in various parts of the country due to improvements, facilitating the hauling of produce to market. By S. M. Williams. 6,000 words. Better Roads and Streets, July. 15 cts.

Sheepshead Bay Motor Racetrack. Description of construction of two-mile wood-paved speedway designed for a speed of 96 miles per hour. 9 ill., 1,800 words. Engineering News, August 19. 15 cts.

Report of Committee on Standard Tests for Road Materials of the American Society for Testing Materials. 7,000 words. Better Roads and Streets, August. 15 cts.

SEWERAGE AND SANITATION.**Treatment:**

Sewage Disposal at Water Purification Plant. Small plant as adjunct to Baltimore's filtration plant. Imhoff tank, dosing tanks, sand filters and sludge drying bed with capacity of 2,000 gallons a day. By James W. Armstrong. 3 ill., 1,000 words. Municipal Journal, August 19. 10 cts.

Description of Kingston-Upon-Thames Sewage Disposal Works and Canbury Gardens. 1 ill., 2,500 words. Journal of Municipal and County Engineers, July (first issue). 50 cts.

Variable-Capacity Hotel Sewage-Treatment Plant. To meet growing demands two new settling tanks, a sludge, and scum-digesting tank, a sprinkling filter and a secondary settling tank were added to an original plant consisting of one settling tank, an automatic dosing chamber and sand filters. By Geo. L. Robinson. 3 ill., 1,200 words. Engineering News, August 19. 15 cts.

Leeds Main Sewerage and Sewage Disposal. General description of plant; screening; pumping plant; percolating filters; sludge treatment. 1 ill., 4,500 words. The Surveyor, July 30. 40 cts.

Seven Years' Experience with a Large Sludge-Pressing Plant. By John T. Thompson, chemist, Knostrop Sewage Works, Leeds. 6,000 words. The Surveyor, July 23. 40 cts.

Sewage Disposal at Southall-Norwood. Description of disposal works which were remodeled about fifteen years ago; tanks; beds; percolating filters. By Reginald Brown. 4 ill., 3,200 words. The Surveyor, July 30. 40 cts.

Clarifying Sewage by Fine Screens. Continued from previous issue. Shovel-vane, drum and Reinsch-Wurl screens; descriptions of installations. 4 ill., 2,500 words. Municipal Journal, August 5. 10 cts. Continued from previous issue. Compares screens; screens versus sedimentation; effectiveness of fine screens; handling screenings. 2,200 words. Municipal Journal, August 12. 10 cts.

Chlorine Control Apparatus for Water and Sewage Purification. Notes on man-

ual and automatic control chlorinators of both direct and solution feed type, for use of liquid chlorine. 4 ill., 2,500 words. Canadian Engineer, August 18. 15 cts.

Municipal Waste Disposal. An address by Prof. F. R. Hesser, Sanitary Engineering Department, University of Kansas, before League of Kansas Municipalities. 5,000 words. Kansas Municipalities, July. 25 cts.

Activated Sludge Sewage Treatment. Editorial. 700 words. Municipal Journal, August 19. 10 cts.

Brief Notes of Experiments in Sewage Purification by Forced Aeration. By J. P. Wakeford, city engineer, Wakefield, England. 3,500 words. The Surveyor, July 30. 40 cts.

Purifying Sewage by Blowing Air. Results of recent experiments in Canada; description of a small experimental plant recently installed at Regina, Sask. By R. O. Wynne-Roberts. 1 ill., 1,700 words. Canadian Municipal Journal, September. 15 cts.

Sewers:

Constructing an Outfall Sewer at Canton, Ohio. 31,000 ft. of sewer is being rapidly built; system comprises 26,000 ft. of 39-inch segmental hollow tile, 5,000 ft. of lock joint reinforced concrete pipe. 4 ill., 500 words. Engineering News, August 5. 15 cts.

How a Sewer Is Being Laid in a Busy Street in Boston. Critical analysis of the methods used with comments and suggested improvements. By Daniel J. Hauer. 3 ill., 2,500 words. The Contractor, July 1. 20 cts.

Circular Sewers Versus Egg-Shaped, Catenary and Horseshoe Cross-Sections. Comparisons made by means of curves; superiority of different sections shown to be dependent upon quantity of flow. By R. DeL. French. 2 ill., 1,250 words. Engineering Record, August 21. 10 cts.

Miscellaneous:

Economics of Sewage Filters. Discusses performance of filters, rate of application of settled sewage, cost of sewage filters and relative costs of different depths. From a paper before the American Society of Municipal Improvements by George W. Fuller. 3,500 words. Contract Record, July 7. 15 cts.

Practical Application of the Saltpeter-Method for Determining the strength of Sewages. From a paper before the American Public Health Association. By Arthur Lederer. 4,000 words. Canadian Engineer, July 15. 15 cts.

Philadelphia's Sewerage Report. Editorial. 3,000 words. Municipal Journal, August 19. 10 cts.

Cement Drain Tile in Alkali Soils Tested for Durability. Report on first year's investigation shows that the richer mortars withstand disintegration. 1,250 words. Engineering Record, August 21. 10 cts.

Automatic Sewage Pumping and Metering Station. New system installed at Providence, R. I. By Allen A. Wood. 3 ill., 900 words. Engineering News, August 12. 15 cts.

WATER SUPPLY.**Water Works:**

Biochemical and Engineering Aspects of Sanitary Water Supply. From a paper before the meeting of the Mechanical and Engineering Section by George W. Fuller. Ill., 45 pages. Journal of Franklin Institute, July. 50 cts.

Design and Construction of the Lake Watrous Dam of the New Haven Water Co. Impounds a reservoir of 725 million gallons storage capacity. 2 ill., 3,500 words. Engineering and Contracting, August 11. 10 cts.

Montreal Water and Power Extensions. Summary of proposed improvements. 5,000 words. Canadian Engineer, August 12. 15 cts.

Water Improvements at Salt Lake City. Improvements include new reservoirs, extension of distribution system, water rights and reduced consumption. 1,200 words. Fire and Water Engineering, August 18. 10 cts.

Water Improvements for Atlantic City. Description of methods used in grubbing and clearing the basin of Doughty Pond; laying force main across salt meadows; construction of the dam. 2,000 words. Fire and Water Engineering, August 4. 10 cts.

Report on Water Conditions at Pittsburgh. Supply works, pumping station, reservoirs and tanks and distribution system are described. 4,000 words. Fire and Water Engineering, August 11. 10 cts.

Water Resources of Butte. Construction and yield of dug wells; distribution system; consumption. By O. E. Meisner. 2,500 words. Fire and Water Engineering, August 11. 10 cts.

Purification:

Six Years of Softened and Purified Water at McKeesport, Pa. Description of method of softening and purifying water and results obtained. 1,500 words. Engineering and Contracting, August 25. 10 cts.

Development of Filtration for Purification of Turbid River Waters. By Guy H. White, superintendent, Columbia, S. C., filter plant. 1,200 words. Fire and Water Engineering, August 4. 10 cts.

Pipe Lines:

Contrasts in Equipment and Methods in Laying Water Mains. City of Chicago employs hand methods on one job and makes use of efficient machinery on another. 5 ill., 1,800 words. The Contractor, July 1. 20 cts.

Data on the Life of Wooden Pipe. Pertains to 79 pipe lines. Gives data on fir and redwood under continuous water pressure, continuous stave fir uncoated, continuous stave redwood uncoated and of continuous stave and wire-bound pipe coated. 5,000 words. Engineering and Contracting, August 18. 10 cts.

Life of Wood Pipe. A summary of the experience and studies by D. C. Henny, consulting engineer of the U. S. Reclamation Service. 1,500 words. Engineering Record, August 7. 10 cts.

Sixty-Seven Breaks in a Cast Iron Water Main. Breaks are believed to have resulted from a poor quality of iron. By C. E. Davis. 1 ill., 900 words. Engineering News, August 5. 15 cts.

Reservoirs:

Stripping Water Works Reservoirs. Figures, diagrams and other data relating to unstripped New York reservoirs and stripped Boston reservoirs; stripping diminishes organic growth and gives a better quality of water, but in any given case local conditions may make the cost exceed the benefit. By Frederick P. Stearns. 3 ill., 4,500 words. Engineering News, August 12. 15 cts.

Pumping:

Centrifugal Pump from Standpoint of Central Station. Discusses characteristics and performances of centrifugal pumps in comparison with other types. Data are given on the types of pumps suitable for specified services and recommendations made as to method of drive. By T. D. Rose. 9 ill., 5,000 words. Electrical Review, July 3. 10 cts.

Combined Power, Pumping and Filter Plant. Details of municipal undertaking at Medicine Hat, Alberta; boilers are fired with natural gas to provide steam for turbo-generators. By W. S. Lea, consulting engineer. 8 ill., 5,000 words. Contract Record, July 7. 15 cts.

An Electrically Driven Water Works Plant. By replacing the steam-driven equipment which was operating under disadvantageous conditions, with electrically driven pump and compressors and rearranging the system, a saving of over \$6,000 per year to the municipality was effected. By E. M. Ivens. 5 ill., 2,000 words. Power, August 10. 5 cts.

Meterage:

New Orleans Water Consumption. Amounts used, wasted and unaccounted for; meter records; rates. 2,100 words. Municipal Journal, August 19. 10 cts.

Miscellaneous:

Valuation of Water Works Properties. The fourth in a series of articles. This one considers the appraisal of reservoir site value. By Halbert P. Gillette. 2,500 words. Engineering and Contracting, August 4. 10 cts.

Necessity of Central Control of Public Water Supplies. Arguments in favor of control of existing plants, supervision of construction of new works and of water sheds and streams used as sources of supply. By Ray C. Werner, chemist, Georgia State Board of Health. 2,500 words. Fire and Water Engineering, August 4. 10 cts.

Prescribed Water Works Operating Methods in West Virginia. Set of rules and regulations issued by state public service commission for the government of electric, water and gas utilities. 3,000 words. Engineering and Contracting, August 4. 10 cts.

Philadelphia Water Bureau Annual Report. Discusses filtration, distribution, pumping stations, reservoirs, high pressure, revenues, consumption and improvements. 5,000 words. Fire and Water Engineering, August 18. 10 cts.

Annual Water Report of Waltham. Hydrants; pumping plants; distribution system; records. 1,200 words. Fire and Water Engineering, August 4. 10 cts.

Rebuilding Omaha Water Intake Cribs. Shore intake crib of timber and stone were faced with reinforced concrete walls; steel boxes of interlocking piles and lattice work were used for a coffer dam, and built into the lower part of the wall. By Geo. T. Prince. 5 ill., 1,200

words. Engineering News, August 19. 15 cts.

Earthquake-Proof Concrete Towers. Designed as gate tower for Calaveras reservoir in San Francisco. 1,200 words. Engineering News, August 12. 15 cts.

Hard Water: Losing Proposition to Kansas. From an address by Prof. C. C. Young, Director of Water and Sewage Laboratory, before League of Kansas Municipalities. 4,000 words. Kansas Municipalities, June. 25 cts.

Functions of a Water System with Respect to Domestic Service and Fire Protection. From a paper by E. B. Proctor before Tri-State Water and Light Association. 1,800 words. Engineering and Contracting, August 25. 10 cts.

Success or Failure of Wells. Discusses causes of failures of wells and gives methods of securing in advance data on their productiveness. From a paper by R. E. Horton. 1,250 words. Engineering and Contracting, August 25. 10 cts.

STREET LIGHTING AND POWER.

Lighting:

Notes on Street Lighting. The results of a study into the street lighting of a representative city of moderate size. Attention is called to some of the things which should receive attention in making an analysis of a street lighting situation where conditions appear wrong but where no one in authority knows exactly how to classify the difficulties. By C. E. Clewell. 4 ills., 3,500 words. Lighting Journal, August. 10 cts.

Report of Lamp Committee of National Electric Light Association. 2 ills., 2,500 words. Lighting Journal, August. 10 cts.

Power Plants:

Central Electric Stations. Relative number and capacity of municipal and private plants; direct and alternating current; change from arc to incandescent lamps. 1,250 words. Municipal Journal, August 19. 10 cts.

Auxiliary Steam Plant of the Vancouver Island Power Company. Describes the mechanical features of a modern steam plant designed primarily for burning oil but with the possibility of substituting coal. It typifies present practice on the Pacific Coast including automatic regulation of the fuel. 6 ills., 6,000 words. Electrical Review, August 28. 10 cts.

Havana Consolidated Power Plant. Description of the Havana Electric Railway, Light and Power Companies' ash and coal handling machinery, boiler and turbo-generator equipment. By C. W. Ricker, assistant general manager and chief engineer. 9 ills., 2,500 words. Power, August 17. 5 cts.

Gas:

Chemical Control of Gas Manufacture. The ninth in a series of articles. This one treats of elementary chemistry. By W. M. Russell and Frank Willis of the Emporia Gas Company. 4,500 words. Gas Age, August 2. 10 cts.

Problems in Natural Gas Engineering. Discusses impurities in natural gas; measuring flow; compressing problems; pipe lines as storage tanks. 3 ills., 3,500 words. The Gas Age, August 2. 10 cts.

FIRE.

Apparatus:

Motor Driven Fire Apparatus. The eighteenth in a series of articles. This one considers the selection of suitable fire equipment for high speed motor driven fire apparatus; also discusses cushion wheels and tires. By Victor W. Page. 4 ills., 3,000 words. Fire and Water Engineering, August 4. 10 cts.

Amount of Apparatus. Average number of each kind per hundred thousand population in cities larger than and smaller than 50,000. 2,200 words. Municipal Journal, August 26. 25 cts.

Protection:

Fire Department Statistics. Figures received from chiefs of 800 departments; numbers of pieces of automobile, horse and hand-drawn apparatus; general information. 26 pages. Municipal Journal, August 26. 25 cts.

Cincinnati's Fire Department. Fire fighting force and facilities; water supply; fire alarm system; fire insurance patrol. 5 ills., 5,000 words. Municipal Journal, August 26. 25 cts.

Melbourne Fire Brigade Report. Causes of fires; the brigade; special service department; fire alarm system. 1,200 words. Fire and Water Engineering, July 7. 10 cts.

Passaic Fire Department Report. Apparatus in service and men employed; building inspection and construction; electric bureau. 1,000 words. Fire and Water Engineering, August 4. 10 cts.

Report on Fire Protection in New York Subway. Report issued by fire commissioner; storage of combustibles;

fire alarm system. 4,000 words. Fire and Water Engineering, August 4. 10 cts.

Fire Protection. The duty and privilege of municipal authorities; water supply; equipment; fire alarm system; trained men. By Sherwood Brockwell. 2,000 words. Fireman's Herald, July 31. 5 cts.

Prevention:

Fire Prevention Work of the Cincinnati Fire Department. An account of the methods of inspection and regulation by which fire hazards are reduced. By Henry C. Bunker, chief. 4 ills., 1,200 words. American City, August. 25 cts.

Miscellaneous:

Employment of Wood in Building Construction. Facts and fallacies concerning some structures called fire proof; inconsistency of experts. By J. P. Whiskeman, advisory expert for the New York State Factory Commission. 4,000 words. Fire Prevention News, July and August. 15 cts.

Fires in Brick and Frame Houses. Relative frequency in each kind of building in 77 cities; were less frequent in frame buildings. 1,500 words. Municipal Journal, August 12. 10 cts.

Preparedness and Fire Protection. By Sherwood Brockwell, Bureau of Fire Prevention, North Carolina Insurance Department. 1,500 words. Municipal Journal, August 26. 25 cts.

Fires that Thrive on Water. Mineral water and metallic sodium; slaking lime; potassium and water. By Gordon Leslie. 2,000 words. Fireman's Herald, August 14. 5 cts.

Handling Gasoline. Fire risks due to careless handling; rules recommended by North Carolina Insurance Commissioner. 1,750 words. Municipal Journal, August 26. 25 cts.

Storing and Handling Gasoline. Rules and regulations issued by State Insurance Commissioner of North Carolina for the use of fire departments. 1,500 words. Oildom, August. 20 cts.

TRAFFIC AND TRANSPORTATION.

Motor Hauling:

Mechanical Traction for Municipal Work. Advantages of motor-driven vehicles; steam-propelled; gasoline-driven; types suitable for special work. By E. J. Elford. 6,000 words. The Surveyor, July 2. 40 cts.

Use of Motor Vehicles in Haulage of Materials on the Highway. Gives detail costs of operation of motor lorries and compares these costs with freight charges. By F. W. Smart. 2,500 words. The Surveyor, July 2. 40 cts.

Haulage by Mechanical Means. Tables showing costs of working motor vans. By T. W. E. Higgins, borough surveyor of Chelsea. 2,500 words. The Surveyor, July 2. 40 cts.

Jitneys:

Digest of the Ordinances Regulating Jitney Buses Adopted in American Cities. License fees and other charges; qualifications of drivers; routes; safety precautions; overcrowding; penalties. 7,000 words. Utilities Magazine, July. \$1.

Rapid Transit:

Track Raising in Building a "Hump" Station of the New York Elevated Lines. Describes design and method of construction at rebuilt elevated stations where the center or express track is raised about 11½ ft. above the level of the local track. 4 ills., 600 words. Engineering News, August 5. 15 cts.

Railroad Building Under and Over the Streets of New York. The third of a series of articles. This one describes the work of tunneling through rock and sand in the bed of the East River. 11 ills., 2,200 words. Scientific American, July 31. 10 cts.

Traffic:

Traffic Surveys. Third in a series of articles concerning practical uses of traffic surveys. This one covers collection of data. By F. W. Doolittle. 19 pages. Aera, July. 25 cts.

Heavy Traffic. Some notes as to the solution of difficulties presented to road authorities by heavy traffic and the extension of mechanical traction in road transit. By Harcourt E. Clare. 2,100 words. Canadian Engineer, August 26. 15 cts.

STRUCTURAL MATERIALS.

Concrete:

Weight-Volumetric Proportioning of Concrete Aggregate in Testing. Description of this method for measuring volumes of cement, sand and stone as outlined in a paper to the American Society for Testing Materials by J. A. Kitts. 2,500 words. Canadian Engineer, August 12. 15 cts.

Cost, Appearance and Wearing Quali-

ties of Various Methods of Surface Finish for Concrete. Report of committee on masonry of the American Railway Engineering Association. 7,500 words. Engineering and Contracting, August 11. 10 cts.

Paints Designed to Prevent Electrolysis in Concrete. 1,000 words. Contract Record, August 11. 15 cts.

Oil in Concrete is Waterproofing. Addition of 5 or 10 per cent by weight of oil renders concrete waterproof even under unusual heads. 500 words. Oildom, August. 20 cts.

An Investigation to Determine the Relative Resistance to Wear of Concrete Made of Different Aggregates. Reports on tests to determine abrasive value, resistance to calking and gouging and general suitability for pavement use. 21 ills., 1,250 words. Engineering and Contracting, August 25. 10 cts.

Reinforced Concrete as a Building Material. By M. T. Cantell. 6 ills., 3,000 words. Contract Record, July 7. 15 cts.

Points Respecting Reinforced Concrete for Roads, Sewerage, etc. By A. E. Collins, city engineer of Norwich. 3,500 words. The Surveyor, August 13. 40 cts.

BRIDGES.

Bridges:

Reinforced Concrete Arch Bridge Has Stone Facing. Three flat arch spans of South Bend, Indiana, bridge completed at cost of \$101,500. 2 ills., 1,000 words. Engineering Record, August 7. 10 cts.

Considerations Affecting the Design of Highway Bridges. Discusses roadway loading, sidewalk loading, snow loading and curb height. By Willis Whited, bridge engineer, Pennsylvania State Highway Department. 1,800 words. Contract Record, July 7. 15 cts.

Erection of Steel Arch Span, Detroit-Superior Viaduct. Description of plant; wooden derrick traveler. 4 ills., 900 words. Engineering News, August 19. 15 cts.

Reconstruction of Piers of Little Rock Junction Bridge across Arkansas River at Little Rock. The second of a series of articles. This describes the work done in connection with reconstruction of piers 3, 4 and 5. 2 ills., 3,000 words. Engineering and Contracting, August 18. 10 cts.

An Ornamental and Cheap Concrete Bridge. Long girder bridge of reinforced concrete at Canyon City, Colo.; cost only \$1.40 per square foot of roadway. By R. C. Hardman. 3 ills., 1,000 words. Engineering News, August 5. 15 cts.

Elastic Curve Applied to the Design of the Sciotoville Bridge. Influence lines aid in simplifying the analysis of 1,550-foot continuous truss spans; comparison of exact and approximate methods. By D. B. Steinman, assistant to consulting engineer. 10 ills., 2,500 words. Engineering Record, August 28. 10 cts.

Viaducts:

Unit-Construction System Applied to Three-Mile Concrete Viaduct to Reduce Cost. California Highway Commission develops scheme for bridging Yolo bypass near Sacramento. Structure cost about one-third what usual structure would have involved. 8 ills., 3,500 words. Engineering Record, August 28. 10 cts.

Hopple Street Viaduct, Cincinnati. Reinforced concrete construction throughout; carried by four lines of balanced cantilever beams having the appearance of continuous arches; design; construction. 7 ills., 2,500 words. Municipal Journal, August 5. 10 cts.

MISCELLANEOUS.

Rebuilding Salem, Mass. Description of water works reconstruction, street widening and other improvements. By W. B. Conant. 1 ill., 1,500 words. Municipal Journal, August 12. 10 cts.

Municipal Regulation of Public Utilities. Paper presented at public policy meeting of National Electric Light Association by John Roemer. 5,000 words. American Gas Light Journal, August 16. 10 cts.

Construction Features of Chicago's New Municipal Pier. Describes methods of handling material and progress of the work. By Charles P. Stivers. 7 ills. The Contractor, 2,000 words. July 1. 20 cts.

Superstructure of Chicago Municipal Pier. Details of the construction plant and method for steel and concrete pier sheds for freight and passenger service. 3 ills., 1,500 words. Engineering News, August 12. 15 cts.

Central Plant at Chicago will Handle Repairs to All City Equipment. All municipal shops to be consolidated at site in heart of city; construction features described; concrete is sent 400 feet through chute to caissons. 4 ills., 1,800 words. Engineering Record, August 28. 10 cts.

Municipal Abattoirs. Importance of municipal supervision; suggestions by U. S. Department of Agriculture. 1,000 words. *Municipal Journal*, August 19. 10 cts.

Neponset River Reclamation. Removes menace to health and redeems marsh lands; assessing benefits. By W. B. Conant. 1 ill., 1,300 words. *Municipal Journal*, August 19. 10 cts.

Deep Trenches for Reservoirs. Notes on methods of timbering in excavation work for deep trenches. By J. N. N. Greig. 6 ills., 3,000 words. *Canadian Engineer*, August 18. 15 cts.

Organization and Operation of a Municipal Garage. System of merits and demerits; records of cost and mileage and daily records of car movement. By W. H. Jordan. 2 ills., 1,600 words. *The American City*, August. 25 cts.

Elements of Accurate Cost-Keeping. Use of a cost system; elements of costs; devising a system; installing; labor; depreciation. By Edward Probert. 5,000

words. *Contract Record*, August 25. 15 cts.

Pressure on Piles Supporting Masonry. Abstracts from paper by R. P. V. Marquardsen. 2 ills., 2,000 words. *Canadian Engineer*, August 26. 15 cts.

Electrolysis Mitigation. Latest approved practice as embodied in recent order of Manitoba Public Utilities Commission. 2,500 words. *American Gas Light Journal*, August 30. 10 cts.

Transportation of Detritus by River Flow. Discussion of the transportation of debris by running water. Result of investigation by G. K. Gilbert, U. S. Geological Survey. 5,200 words. *Canadian Engineer*, August 26. 15 cts.

Municipal Ice Plants. Address before League of Kansas Municipalities by Hugh J. Cooper, Commissioner of Public Utilities, Weatherford, Okla. 1,500 words. *Kansas Municipalities*, August. 25 cts.

Sliding Salary Scale for City Engineers. Editorial on suggested law limiting

salaries of city engineers in Indiana. 1,000 words. *Engineering and Contracting*, August 18. 10 cts.

Variations in the Cost of Track Concrete. Give cost of batch mixing, cost with continuous mixer and cost of hand mixing. By S. Gausmann. 1,200 words. *Contract Record*, July 7. 15 cts.

Electricity in Stone Quarries and Asphalt Plants. Discusses economies and advantages of electric motor drive and describes in detail the motor equipment in four establishments in Auburn, N. Y., which purchase power from the local central station. 6 ills., 3,000 words. *Electrical Review*, August 21. 10 cts.

Some Fundamental Principles of Scientific Shovel. The second of a series of articles showing how more work can be done with this tool. This article takes up the shapes of shovels for different materials and discusses the size. By Daniel J. Hauer. 2,500 words. *The Contractor*, July 1. 20 cts.

NEWS OF THE SOCIETIES

Calendar of Meetings.

September 6-13.

INTERNATIONAL HEALTH CONGRESS. to meet with the American Public Health Association, the 15th annual conference of the New York State Health Department and the New York State Sanitary Officers' Association. —Rochester, N. Y.

September 7-10.

LEAGUE OF CALIFORNIA MUNICIPALITIES.—Eighth Annual Convention, Oakland, Cal. Secretary, H. A. Mason, Pacific Building, San Francisco.

September 7-11.

CALIFORNIA CONFERENCE ON CITY PLANNING. —Oakland, Cal. Secretary, Charles H. Cheney, Crocker Bldg., San Francisco.

Sept. 13-19.

PAN-AMERICAN ROAD CONGRESS.—Held by American Road Builders' Association and the American Highway Association. Oakland, Cal.

September 14-16.

IOWA LEAGUE OF MUNICIPALITIES.—Annual Convention, Council Bluffs. Secretary, Frank G. Pierce.

September 16.

PACIFIC HIGHWAY ASSOCIATION.—Annual Convention, San Francisco, Cal. President, Samuel Hill, Maryhill, Wash.

September 16-18.

AMERICAN SOCIETY OF CIVIL ENGINEERS. Convention, San Francisco. Secretary, Charles W. Hunt, 220 West 57th St., New York City.

Sept. 16-18.

AMERICAN ELECTROCHEMICAL SOCIETY.—Twenty-eighth annual general meeting, San Francisco. J. M. Muir, 239 West 39th street, New York City, Chairman of Transportation Committee.

September 16-18.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Convention, San Francisco. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

September 16-18.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS. Convention, San Francisco. Secretary, F. L. Hutchinson, 29 West 39th St., New York City.

September 16-25.

INTERNATIONAL ENGINEERING CONGRESS.—Am. Soc. C. E., Am. Inst. Min. E., Am. Soc. Mech. E., Am. Inst. E. E. and Soc. N. A. & M. E., San Francisco, Cal. Secretary, W. A. Catell, Foxcroft Building, San Francisco, Cal.

September 20-23.

ILLUMINATING ENGINEERING SOCIETY.—Ninth annual convention, New Willard Hotel, Washington, D. C. Secretary C. A. Littlefield, 29 West 39th Street New York.

Sept. 22-24.

MASSACHUSETTS STATE FIREMEN'S ASSOCIATION.—Annual convention, Haverhill, Mass. George Wilson, Lynn, Mass., Chairman of Committee.

September 23-24.

JACKSON HIGHWAY ASSOCIATION.—Convention, Nashville, Tenn.

September 27-30.

SAFETY CONFERENCE. San Francisco.

Sept. 27-Oct. 1.

PACIFIC COAST FIRE CHIEFS' ASSOCIATION.—Annual Convention, San Francisco. Secretary, Harry W. Bringham, Fire Marshal, Seattle, Wash.

September 27-October 1.

INTERNATIONAL GAS CONGRESS AND AMERICAN GAS INSTITUTE. Convention, San Francisco. Secretary, George C. Ramsdell, 29 West 39th St., New York City.

Sept. 29-Oct. 1.

MASSACHUSETTS STATE FIREMEN'S ASSOCIATION.—Thirty-sixth Annual Convention, Haverhill. Secretary, D. Arthur Burt, Taunton.

October 4-6.

NORTHWESTERN GOOD ROADS CONGRESS.—Annual Convention, Cedar Rapids, Ia. Secretary-treasurer, J. P. Kennan, Milwaukee, Wis.

October 4-9.

AMERICAN ELECTRIC RAILWAY ASSOCIATION. Convention, San Francisco. Secretary, E. B. Burritt, 8 West 40th St., New York City.

Oct. 5-8.

PENNSYLVANIA STATE FIREMEN'S ASSOCIATION.—Annual Convention, Philadelphia. President, Miles S. Humphreys, Pittsburgh, Pa.

October 6-8.

NATIONAL HOUSING ASSOCIATION.—Minneapolis, Minn., Secretary, Lawrence Veller, 105 East 22d street, New York City.

Oct. 11-15.

NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.—Annual Convention, Dayton, O. Secretary, Will P. Blair, B. of L. E. Bldg., Cleveland, O.

October 12-15.

AMERICAN SOCIETY OF MUNICIPAL IMPROVEMENTS.—Annual Convention, Dayton, O. Secretary, Charles Carroll Brown, 702 Wulstin Bldg., Indianapolis, Ind.

November 9-12.

ATLANTIC DEEPER WATERWAYS ASSOCIATION.—Eighth Annual Convention, Savannah, Ga.

November 17-19.

NATIONAL MUNICIPAL LEAGUE.—Annual Convention, Dayton, O. Secretary, Clinton Rogers Woodruff, 705 North American Bldg., Philadelphia, Pa.

Dec. 27-Jan. 8, 1916.

SECOND PAN-AMERICAN SCIENTIFIC CONGRESS.—Washington, D. C., Department of State, Washington.

February 15-18, 1916.

SECOND NATIONAL CONFERENCE ON CONCRETE ROAD BUILDING.—Secretary, J. P. Beck, 208 S. LaSalle St, Chicago, Ill.

International Association of Municipal Electricians.

Concentric wiring and its use in America, one of the subjects discussed at the twentieth annual convention of the International Association of Municipal Electricians, which was held at Cincinnati, O., August 24-27, perhaps held the closest attention of those who attended the convention. Many other papers were read as well. Exhibitors filled all the space provided for exhibition purposes.

Baltimore was selected as the place for the 1916 meeting and the following officers were re-elected:

W. H. Flandreau, president, Mt. Vernon, N. Y.; Dr. Chas. P. Steinmetz, first vice president, Schenectady, N. Y.; Frank T. Brooks, second vice president, Indianapolis, Ind.; C. E. Convers, third vice president, San Antonio, Tex.; L. S. Bosley, fourth vice president, Springfield, O.; Clarence R. George, secretary, Houston, Tex.; C. E. Diehl, treasurer, Harrisburg, Pa. Committees were appointed as follows: Finance Committee—Frank K. Shinnen, chairman, Atlantic City, N. J., P. J. Boisel, Allentown, Pa., A. L. Pierce, Wallingford, Conn. Executive Committee—Robt. J. Gaskill, chairman, Fort Wayne, Ind., John Thomas, Scranton, Pa., D. H. Fisher, Cincinnati, O., R. C. Turner, Atlanta, Ga., Jos. Macaulay, St. Paul, Minn.; Emil Schmidt, Rochester, N. Y.; Wm. H. Thompson, Richmond, Va.; C. F. Gaul, Louisville, Ky.; Wm. P. Briggs, New Bedford, Mass.; J. B. Yeakle, chairman committee of arrangements for 1916 convention, Baltimore.

Tuesday night the members of the association were welcomed to Cincinnati by Mayor Spiegel and representatives of the Chamber of Commerce, responses being made by Dr. Steinmetz, Will Y. Ellett of Elmira, N. Y., and J. B. Yeakle of Baltimore. The latter, in the course of his remarks, introduced Miss Cora Lucille Thompson, daughter of William Thompson, city electrician of Richmond, Va., as the "daughter" of the association.

Wednesday morning President Flandreau, in his annual address, advocated a membership committee, consisting of one member from each state and urged that a census be taken of those engaged in electrical work, also that every city electrician in the country should be a member of the association.

Following the reading of the paper by R. A. Smith of Norfolk, Va., on "The Advisability of Using Concentric Wiring in This Country," there was an animated discussion on the subject. The object of this style of wiring, which is said to be in wide use in European countries, is to cheapen the cost of wiring, especially in what is known as branch circuit work, in the smaller class of homes and in the suburbs of large cities. Mr. Smith said that the rules suggested by him had not been approved, but were simply suggested. The adoption of this

system would enable electricity to be largely substituted for oil and gas, he said.

In this connection, it was stated that an electric lighting company in Little Rock, Ark., had attempted to introduce the concentric system in that city, but that the citizens did not seem to favor that style of wiring.

Before any action is taken on this system, it will be fully investigated by a committee from the association.

A paper on "Fire Alarm Systems for Industrial Plants," by Albert J. Cross of New York, was read, advocating the use of such systems in industrial plants and referring to the benefits to be derived from their use. Many such systems are in wide use throughout the country, some of them being very complete.

In this connection a discussion arose on the subject of sprinkler alarms, the prevailing opinion being that it is best for such alarms to come direct into fire alarm headquarters before being sent out to the fire department. The opinion also prevailed that in most fire departments it is better to respond to sprinkler alarms, even if trivial, rather than run the risk of a conflagration. The association went on record as favoring fire alarm systems for such plants. G. Francis Gray of Schenectady, N. Y., read a thorough paper on "Lightning Arresters."

W. J. Canada, electrical engineer of the Bureau of Standards of Washington, D. C., read a paper on "The Scope and Present Status of the National Electric Safety Code," and said that a conference would be held in Washington on October 27 next, of state commissions, municipalities and national associations, when the National Electrical Safety Code, which the bureau has been engaged in the preparation of for the past two years, will be presented for final amendment, ratification and adoption for a year's trial.

The paper, a lengthy one, went fully into the entire subject, and brought out a considerable discussion. The code was generally endorsed, as being a move to effect standardization in all lines of industry. Mr. Canada intimated that the rules would probably apply to both old and new work, as old construction cannot always be abolished. A committee of three from the association will attend the conference. They are: R. A. Smith of Norfolk, Va., A. C. Farrand of Ventnor City, N. J., and W. S. Fastnacht of York, Pa.

Following a discussion as to the association's status with the National Fire Protective Association, it was decided to have the organization fully represented in that body. The association is already represented on the signal board, and will also be on the electrical committee, which has in charge the preparation of the code for final consideration.

S. E. Doane of Cleveland, O., who recently returned from Europe, where he went to investigate concentric wiring, then made the following statement: "There are different rules of practice

on both sides of the Atlantic. Aboard the smaller customers are sought out, while in this country the companies have been averse to carrying small customers as a profit could not be made. It is a question of less expensive wiring. Concentric wiring is in my judgment the neatest scheme put forward to connect the dynamo with the lamp. It is also the best and cheapest, entailing the least cost of insulation. It is simply a rubber covering on No. 14 wire, with a coating of paper around it, all enclosed in a copper tube. The wire is not laid in a wall, but on the outside, but is usually concealed by paint and wall paper," he said. "The only fittings are at junction points. There has been a general impression that this system is a general panacea for all electrical ills, but this is not so, the system being principally for small residences, suburbs of cities, etc., where a cheap cost of construction is desired."

Mr. Doane expressed the opinion that ultimately the concentric system of wiring would come into general use in this country, as the cost of installation is one-third that of the present forms of wiring. Samples of this new form of wiring were on exhibition.

A paper, with demonstration, of "Practical Cable Maintenance Methods," was given by O. F. Tallman of St. Louis, who showed an easy method of discovering leaks, etc., wherever they might exist.

H. M. Beck of Chicago, in a paper on "Storage Batteries for Fire and Police Alarm Purposes," went into the subject in an exhaustive manner, giving the details of construction and maintenance.

"The Work of the Bureau of Standards," including an account of the Co-operation of the Bureau with Municipalities in securing Electrolysis Mitigation and Improving Electrical Service and Meter Accuracy, was presented by Burton McCollum of the Bureau of Standards, Washington, representing Dr. E. B. Rosa, chief physicist of the bureau, who was unable to be present.

The paper went into details in describing the work of the bureau and what it expected to accomplish in the future. It was illustrated with stereopticon views.

The paper on "Uniform Electrical Standards," by Dr. John Price Jackson of Pennsylvania, was presented by his deputy, J. H. Kinseley of Harrisburg, Pa., and was a plea for uniformity in standards pertaining to everything electrical. In the discussion that followed, W. J. Canada of Washington said: "Speaking for the Bureau of Standards, we appreciate the strong appeal for national standards. Dr. Jackson has the benefit not only of long engineering experience, but also of contact with life hazards which his connection with the largest state industrial commission has given."

One of the most interesting papers was that of W. H. Flandreau of Mt. Vernon, N. Y., president of the associ-

ation, on "The Responsibility and Importance to the Public of the Office of Municipal Electrician or Superintendent of Fire and Police Telegraph." He made a plea that the men in charge of the fire and police alarm signal system throughout the country be paid salaries commensurate with their calling, stating that "upon these men depends very largely the safety of the public in keeping down losses of life and property by fire, and in maintaining the efficiency of the police service." In the discussion that followed, Dr. Steinmetz urged the city electricians and fire and police alarm superintendents to keep the public fully informed on those matters. He also believed that more efficient results would be found where fire and police alarm systems were maintained separate from fire department control.

Price I. Patton, second assistant manager of the electric bureau, Philadelphia, in speaking on "Police Patrol and Fire Alarm Records," described the method in use in Philadelphia in keeping such records, which received much favorable comment.

Another interesting paper was that on "Standards for Fire Alarm Installations," by F. A. Raymond of New York, of the National Board of Fire Underwriters, which was followed with close attention. Mr. Raymond stated that the paper was intended as a basis for the discussion of fire alarm systems for cities, rather than an attempt to lay down any fixed rules. He referred to the different classes of street boxes, of the improvements made in fire alarm systems and made numerous suggestions for still further improvement in the receiving and transmitting of alarms, care of battery rooms, etc.

He stated that when the National Board of Fire Underwriters began to investigate and report on fire alarm systems, it found no fixed standards and no scale by which the relative merits of any fire alarm installation could be determined.

In the discussion that followed the suggestion was made that an approved list of fittings for fire alarm boxes be prepared by the Underwriters' laboratories, but no definite action was taken on the suggestion.

C. E. Convers of San Antonio, Tex., read an interesting paper on "The Fallacy of Placing Fire and Police Alarm Wires in Telephone Cables," in which he advocated the use of separate cables for fire alarm purposes.

L. S. Brach of Newark, N. J., read a paper on "Lightning Protective Apparatus for Fire and Police Telegraph Circuits," in which was mentioned the many benefits resulting from their use.

Reports of various committees adopted and ordered printed, embraced reports of the committee on the grounding of boxes, recommending that the association should not go further than it already has gone in placing itself on record favoring a ground.

The committee on overhead line construction reported progress and stated

that it was desirable to extend the work beyond the general recommendations made at the last convention, for the reason that the National Bureau of Standards in preparing the safety code which will deal with this construction, and the Association is co-operating in the preparation of the same and further action will be postponed until the National Electric Code is issued by the Bureau of Standards.

The report of the electrolysis committee represents data and recommendations of the Bureau of Standards and the committee was ordered continued.

The committee on municipal lighting reported that such a committee can be of great value to the members of the association whose departments have jurisdiction over such matters. Among the subjects recommended to be considered is that of an analysis of street lighting rates, in order to find the most equitable and intelligent method of determining the price that should be paid by a municipality for public lighting, at the same time allowing the utility company an equitable return on the actual investment involved.

Following is a list of exhibitors: Westinghouse Electric Co., J. I. Brett, manager, Cincinnati office, in charge. Showing metallic flame and flame carbon arc lamps. Also Mazda C lighting fixtures.

L. S. Brach Supply Co., Newark, N. J. Represented by Mr. Brach. Showing lightning arresters, terminal blocks and introducing traffic signals.

Economy Fuse Company of Chicago, represented by A. L. Eustice, A. E. Tregenza and H. S. Day. Showing Economy Renewable Cartridge Fuses.

Manhattan Electric Supply Company of Chicago, represented by F. J. Foster of Cincinnati. Showing Red Seal Dry Batteries.

H. W. Johns-Manville Company, represented by H. L. Steiner, manager Cincinnati office. Showing fuse devices, fibre conduit, batteries, friction tape and motor protective devices.

American Steel & Wire Company. Showing lead cable and bonds.

Gamewell Fire Alarm Telegraph Company, represented by C. F. Maulin of the Chicago office and O. P. Crocker, general agent. Showing 6-circuit automatic storage battery switchboard, new type Peerless positive non-interfering high-tension current resisting fire alarm boxes; also new types of punch registers, time stamps, police signal apparatus and various devices for calling patrolmen who are patrolling their beats.

Safety Insulated Wire and Cable Company, M. B. Austin & Company, district managers, represented by Arnold Friend of Chicago. Showing Safety Fire and Police cables, steel tape cables, which are being extensively used without conduits.

Western Electric Company, represented by Jack Nolloth of the Cincinnati office and G. M. Cramond, showing line of P. B. X. boards and police

and mine sets. Also a standard line of common battery sets and lead covered insulated telephone cable.

Kellogg Switchboard & Supply Company, represented by E. A. Woodward of Chicago. Showing combined telegraph and telephone equipment, operating on same circuit without interference. Also central office equipment, switchboard of improved type, controlling a number of circuits.

Star Electric Company, represented by J. W. Mackay, F. F. Stover and Ollie Doolittle of the Chicago office and E. D. Fay of Newark, N. J., and Timothy O'Hearn of Boston. Showing a 10-circuit repeater, engine house set, register, time stamp, take-up reel and fast time register for six blows per second. Also six styles of boxes, three styles of gongs and a 12-circuit switchboard.

General Electric Company, represented by G. F. Gray of Schenectady, N. Y., showing vacuum lightning arresters, high frequency testing oscillator, multi-gap and compression chamber lightning arresters for 2,500-volt circuits. Also incandescent and arc lamps for street lighting and fans.

International Engineering Congress.

The annual session of the International Engineering Congress will be held at San Francisco, Cal., September 20-25, at the Auditorium Building. The opening session will begin at 10 o'clock in the morning with an address of welcome by Mayor Rolph of San Francisco. Following this will be addresses by General Goethals and others of the honorary officers. This will be followed by the presentation to Dr. James Douglas of the John Fritz medal.

The Panama Canal will be the general subject at the Monday afternoon session. There will be four sessions on the subject of "Waterways," and four on "Irrigation." The first session on "Municipal Engineering" will be held Tuesday afternoon, September 21. Papers read then will include the following: "City Planning," by Nelson P. Lewis, chief engineer, Board of Estimate and Apportionment, New York City; "London Traffic in 1913," by Sir Albert Stanley; "Transit Problem in American Cities," by W. F. Reeves, assistant engineer, New York Interborough Rapid Transit Co.

At the Wednesday morning session the following will be read: "Recent Progress and Tendencies in Municipal Water Supply in the United States," by J. W. Alford; "Municipal Water Supply in France, Belgium, Algeria-Tunisia," by Dr. E. Imbeaux, Paris; "The Disposal of Suspended Matters in Sewage," by Rudolph Hernig; "Sewage for Low Countries with Special Regard to the Town of Amsterdam," by A. W. Bos, director of public works, Amsterdam, the Netherlands. Papers at the afternoon session will include: "Streets," by George W. Tillson, consulting engineer for Borough of Brooklyn; "Rural Highways," by Logan Waller Page, director, U. S. Office of Public Roads; "Rural High-

ways," by L. Simasset, chief engineer of bridges and highways, Paris, France; "Construction and Maintenance of Rural Highways," by Alfred Dryland, county surveyor, Surrey, England; "Rural Highways," by Arthur Gladwell, engineer and surveyor, Eaton rural district council, England; "The Struggle Against Dust," by C. C. Dassen, engineer, inspector general of streets for the City of Buenos Aires, Argentine Republic; "Proof Testing of Structures," by J. E. Howard, Interstate Commerce Commission, Washington, D. C.

The sessions of municipal engineering will be continued at the Friday meetings, when the following will be presented: "Utilities," by Dr. A. C. Humphreys, president Stevens Institute of Technology, past president of American Society Mechanical Engineers and American Gas Institute, New York; "Short Paper on Public Utilities," by Edward Willis, Chiswick, England; "Fire Protection," by John R. Freeman, consulting engineer, past president, American Society Mechanical Engineers, Providence, R. I.; "Arch Bridges of Hooped Cast Iron," by Dr. Ing. Fritz von Emperger, Vienna, Austria; "Preliminary Municipal Engineering at Panama," by Henry Welles Durham, formerly resident engineer in charge of municipal engineering at Panama City, New York; "Municipal Engineering and Domestic Water Supply in the Canal Zone," by George M. Wells, resident engineer, division of municipal engineering, Panama Canal, Balboa Heights, Canal Zone, Panama; "Sanitation in the Panama Canal Zone," by Lieut. Col. Chas. F. Mason, Medical Corps, U. S. A., chief health officer of the Panama Canal, Balboa Heights, Canal Zone; "Soliditit' Concrete Roads in Italy," by Prof. Luigi Luiggi, president Italian Society of Civil Engineers, Rome, Italy.

Among the papers to be presented at the session of the division of materials of engineering construction are: "Clay Products as an Engineering Material," by A. V. Bleininger; "Aggregates for Concrete," by E. S. Thompson; "Waterproof Concrete," by R. L. Humphreys; "Volume Changes in Concrete," by Alfred H. White; "Alloy Streets in Bridgework," by J. A. L. Waddell; "Testing Materials," by R. G. Batson, Association of King's College, London, assistant in the Engineering Department of the National Physical Laboratory, Teddington, England; "Testing Full Size Members," by Gaetano L. Lanza, Philadelphia, Pa.; "Thermo and Traffic Effects on Street Pavements," by Jas. E. Howard.

Mechanical engineering papers include: "Motor Vehicles, Passenger Type," by Ethelbert Favary, New York; "Motor Vehicles, Utility Type," by A. J. Slade, New York; "Motor Tractors," by F. S. Davis; "Power Plant Design," by H. S. Putnam, consulting engineer, New York; "The In-

(Continued on page 415.)

NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

TRENCH FILLER

And General Utility Power Unit.

The "Double Quick" trench filler, while designed primarily for backfilling, soon showed a wide range of application because of its hoisting feature, so that it is now used by contractors generally as a general utility power unit. For instance, pipe is loaded or unloaded and lowered into trenches; cables are pulled through conduits; lighting poles are quickly raised and set, and many of the numerous jobs in the day's work of the contractor may be done with this unit.

The machine can be moved along the job by means of its own power, by using the "dead man" and sheave and the 300 feet of $\frac{3}{8}$ -inch manilla rope furnished. One end of the rope is fastened to the loop in the end of the tongue and passed through the sheave on the "dead man." The turntable is swung around parallel to the trench, for instance, and locked; the other end of the rope is then snubbed around the "niggerhead" on the front of the machine, thus moving it forward by its own power.

In backfilling with the "Double Quick" no more men are needed than in the old method and, it is claimed, the work is done twice as rapidly. The entire operation is controlled by one lever. The machine is moved forward by its own power as the work progresses. The scraper covers a radius of about 90 degrees at each setting of the machine, the turntable accommodating itself automatically to the pull of the scraper. The engine operates the scraper at the rate of 150 feet per minute in common soil and 100 feet per minute in clay soil. The speed is adjusted by changing the sprockets on the engine crankshaft. The filler is placed parallel to the trench and opposite the loose dirt. The scraper,

connected by the steel cable, is placed in the dirt to a depth depending on the weight and character of the soil. The operator pulls the lever controlling the winding drum, drawing the scraper with its load to the edge of the trench, where it is emptied. The instant the scraper reaches the edge of the trench the power is released and the scraper drawn back for the next load. Cribbing can be withdrawn at once by the hoist, thus making it available for new excavation, resulting in a large saving. The "Double Quick" can be used in places where teams cannot do the work, as on parking or lawn.

The frame of the machine is of heavy I-beam steel and is underslung from the trucks. Under the skids is a steel ballast apron which may be loaded for weighting down in case unusually heavy material is encountered. The turntable swings easily and can be locked in the four positions. The engine is $4\frac{1}{2}$ h.p. gasoline. The scraper is fitted with a steel bit provided with arched hounds working in slots and pivoted behind, to push the scraper and thus prevent pulling out the fasteners. The winding drum is provided with a patent helix clutch. It has a lever-controlled band brake with non-burning asbestos lining; a ratchet and pawl hold the load at rest. With the clutch and brake the load can be "spotted" at any point desired.

Superintendent of Public Works Wm. A. Hansell, Jr., Atlanta, Ga., states that the "Double Quick" takes the place of twenty men filling trenches. Bent Bros., contractors, Los Angeles, Cal., have reduced the cost of backfilling with it to 2 cents per cubic yard. The Blackhawk Construction Co., Waterloo, Ia., have found that with the "Double Quick" two men can fill 600 feet of trench 2 feet wide by 7 deep, in clay, in a day. Many are reported to have made a 50 per cent saving.

The "Double Quick" is made by the Waterloo Cement Machinery Corporation, Waterloo, Ia.

ROAD PLANER

And Smoothing Drag for Road Maintenance.

The maintaining of dirt roads presents a continuous problem and unless they are worked over thoroughly as soon as ruts begin to appear the result is often worse than no road at all. Frequent planing and crowning to keep the drainage are necessary and unless there are facilities for doing the work it is expensive in time and money and troublesome. The No. 6 Puffer-Hubbard road planer and smoothing drag is designed to reshape quickly rough, rutty and muddy roads.

The road planer and smoothing drag is made with three steel beams like plow beams, curved at the rear ends, at which are attached the smoothing or trowel blades. The forward blades are adjustable and are operated by a lever within easy reach of the driver. The blades are high carbon steel and all movable joints are substantially made and all nuts are keyed on.

The machine planes, drags and smooths down the surface as the loose material is moved to the center. The tendency towards a wave and hollow effect resulting from the continued use of a drag is eliminated. The weight of the driver is almost wholly over the trowel blade, making the smoothing effective.

It has been found that with the use of this planer and drag a mile of country road 16 feet wide can be put into good condition for heavy traffic for about \$100 to \$125 a year. The machine, which is illustrated here, is made in one size, with 7-foot blades, and weighs 400 pounds. It is made by the Puffer-Hubbard Mfg. Co., Minneapolis, Minn.

METALLIC PACKING.

For Waterworks Machinery.

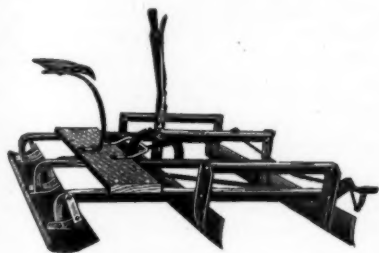
"Ambest" metallic packing has been found especially adapted for valves on pumps, compressors, engines and waterworks machinery in general. It is claimed to eliminate the troubles of solid metallic rings and to cut the cost two-thirds. It is made from special non-friction metal, in long straight pliable strands carrying a superior mineral lubricant. It is easily separated and twisted into size needed for the largest rod or smallest valve stem and is easy to apply.

It is claimed to be suitable for all pressures and all temperatures up to 600 degrees, to remain frictionless and not to fuse or become hard. Ambest is easily applied with a flat stick, and as it comes in long strands there are no uneven spots. It is readily removed and can be used again. It is claimed to outlast fibrous packing many times.



"DOUBLE QUICK" FILLING TRENCH.

Besides the straight strand form, Ambest is made in a number of other forms for various purposes. "Epcu" is made from Ambest strands encased by a fine braiding; it is in spiral form, can easily cut into rings and is made in all sizes and lengths from 6 to 12 feet. "Turco" is made from Epcu spiral into rings to measurement only; it comes with or without a bottom and top ring of fibrous packing or metal tubing and is furnished in sets to fit rod and box. "Placo" is a single ring of Turco, made to measurement only. "Valco" is twisted Ambest strands,



ROAD PLANER AND SMOOTHING DRAG.

which may be separated into any size needed and wound on a reel. "Robco" consists of Ambest strands braided in the same manner as square-flax packing. "Welco" is made from Ambest metal in coarser strands and braided in combination with asbestos yarn.

Ambest, which is shown in the accompanying illustration, and the Ambest products are made by the Eureka Packing Co., 78-80 Murray street, New York.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago—The award to be made at this place September 10, involving 2,000 tons, is the most important municipal letting in sight. At Craig, Colo., 400 tons is to be bought. Quotations: 4-inch, \$26.50; 6-inch and larger, \$24.50, with \$1 extra for Class A water and gas pipe. Birmingham—No large orders have been received, but smaller orders have aggregated a respectable total. Demand for gas pipe is encouraging. Prices are firm. Sanitary pipe-makers report no improvement. Quotations: 4-inch, \$21.50, f.o.b.; 6-inch, \$19.50; gas pipe, \$1 extra. New York—Metropolitan Water and Sewerage Board of Boston has awarded contract for 170 tons 84-inch pipe at about \$37.50 per ton delivered. Public lettings are slow, but private buying continues. Quotations: 6-inch, Class B and heavier, \$23.50 to \$24; Class A and gas pipe, \$1 extra.

Lead.—The market has been lively during the past week and many thousands of tons have changed hands. Quotations: New York, \$4.90; St. Louis, \$4.75.

The Ahrens-Fox Fire Engine Company, of Cincinnati, O., originators of the Booster pump, laid a great deal of stress on their exhibit of equipment at

the Cincinnati convention of fire chiefs. The full line shown included one Model L-2, the new Twin Triple pumper and hose Ahrens-Fox; one of the New York special jobs recently sold by the Ahrens-Fox company to New York City, Model H-K-2; one Model K-2 pumper and hose carrier; one Model A-C Triple Combination job; and, of course, the interesting Booster pump, Model K-11.

An Ahrens-Fox fire truck was equipped for passenger carrying and did service to the fire chiefs over the city of Cincinnati during the entire week.

In the official tests conducted at Chester Park for the benefit of the visiting fire chiefs, Ahrens-Fox equipment came through the gruelling twelve-hour grind with a perfect score. This is the third time that the Cincinnati equipment has performed this feat, having shown a perfect score at New York in 1913 and at New Orleans in 1914, and in Cincinnati in 1915, each exhibition having been given before the fire chiefs who attended the annual convention of the International Fire Chiefs' Association.

NEWS OF THE SOCIETIES

(Continued from page 413.)

ternal Combustion Engine of the Year 1915; the Gas Power System; a Survey of Its Status in the Year 1915," by Prof. Chas. Edward Lucke, Columbia University, New York; "The Development of the Construction of Turbines in the Netherlands," by D. Dresden, w. i., mechanical engineer for Messrs. Gebroeders Stork & Co., Hengelo, The Netherlands; "The 1915 Steam Turbine," by E. A. Forsberg, Stockholm, Sweden; "The Diesel Engine in America," by Max Rotter, chief engineer, Busch-Sulzer Bros., Diesel Eng. Co., St. Louis, Mo.

A paper on "Electric Illumination," by S. H. Blake, General Electric Co., is among those to be presented at the electrical engineering session. Another is "The Effect of Electrolysis on Engineering Structures," by Elbert F. Ganz, professor of electrical engineering, Stevens Institute, Hoboken, N. J.

Gen. George W. Goethals is the honorary president of the congress. Following are the vice-presidents: Prof. Richard Beck, Sir J. H. Biles, Otto T. Blathy, Com. Christian Blom, Prof. Andre Blondel, Dr. C. E. L. Brown, Dr. Emil A. Budde, Henry Le Chatelier, Prof. Hermann Hullmann, Wm. Henry Hunter, Prof. Luigi Luiggi, Rear Ad. Yoshihiko Mizutani, W. M. Morday, Sir Charles Parsons, Jean L. de Pulligny, V. E. Timonoff, R. P. J. Tutein-Melthenius, H. H. Vaughn and Sir Wm. Willcocks.

American Association of Engineers.

Invitations have been sent by the American Association of Engineers to the engineering departments of all the principal railroads, corporations and firms in the City of Chicago to attend

a booster dinner to be held at the Hotel LaSalle, Sept. 14, 1915.

Prof. F. H. Newell, head of the department of civil engineering at the University of Illinois and who until recently was director of the U. S. Reclamation Service, will speak at this dinner on the "Needs of Organization Among Engineers." The aims of the American Association of Engineers is to raise the standard of ethics of the engineering profession and to promote economic and social welfare of engineers; by affording means for the interchange of information; by maintaining a service clearing house; by affording patent and legal advice; by supervision of legislation and by proper publicity. A 30 per cent increase in membership, drawn from all parts of the United States, as well as from all branches of the engineering profession, has been registered by this organization during the past two weeks. Local chapters are being formed in St. Louis, Milwaukee, Indianapolis and many of the larger cities. A national convention is to be held at the La Salle Hotel, Chicago, on Dec. 10 and 11, 1915. All engineers have been invited and the engineering societies and clubs of the United States are being urged to be



AMBEST METALLIC PACKING.

represented by engineering delegates. Arthur Kneisel, 29 S. La Salle street, Chicago, Ill., is secretary of the organization.

Safety First Federation of America.

The Fire Insurance and Fire Prevention Committees of the Safety First Federation of America, made up of members from all parts of the United States and one from Canada, have decided upon the establishment of an annual National Fire Prevention Day and selected October 9.

The committee also voted to recommend to the first annual national convention of the federation, to be held in Detroit in October, the inauguration of a campaign for safety laws in all states.

Former Chief William Guerin of the New York Fire Department presided at the meeting in the offices of the federation at 6 East 39th street, New York City.

Following are recommendations to be presented to the national convention in October;

The enactment of fire prevention laws in all states.

The establishment of a National Fire Prevention Day, October 9 being recommended.

A campaign of education in fire prevention, to be directed by the following committee: Edward R. Hardy, chairman of the Safety First Society of New York; C. Albert Gasser, inspector of combustibles and fire risks, representing the Newark Board of Trade, and William Guerin, chairman of the fire prevention committee. It is proposed to urge laws for the teaching of fire prevention in all schools, public and private.

The appointment of fire marshals in all states.

Legislation to regulate the manufacture and disposition of explosives and inflammable materials, including fireworks, and regulations regarding aisles, exits, &c., in public buildings.

Legislation making persons liable for loss to others resulting from fires caused by carelessness or criminal intent, with the additional provision that municipalities may recover all expenses incurred in the extinguishment of fires so caused.

Laws providing for State building codes, with the following committee to draft a model code: Chairman, J. O. Hammit of the New York fire department, and A. D. Iddings, Dayton, O.; Frank Hague, Jersey City.

A sub-committee was named to consider uniform laws to regulate the use of combustibles and explosives, consisting of C. Albert Gasser, Newark, chairman; A. D. Iddings, Dayton, O., and Frank Hague of Jersey City.

The most mooted subject before the committees and that on which the greatest number of appeals for instant action has been received was the regulation of the use of explosives on Independence Day. There was a divergence of opinion, but it was generally agreed that the sale and use of sparklers, balloons of paper, toy cannon, fire-crackers and dangerous fireworks should be prohibited.

A table, compiled by the Bureau of Statistics, showed that fourteen lives had been sacrificed to the celebration of the Fourth this year, an increase of two over 1914. There was a large decrease, however, in the number of accidents. The total this year was 495, compared with 879 in 1914. Hartford, Conn., led in the casualty list with 41 accidents. Cincinnati was second with 29. Detroit had 12 and Baltimore 10.

Northwestern Good Roads Congress.

The annual sessions of the Northwestern Good Roads congress, embracing seven states, will be held at Cedar Rapids, Ia., October 4 to 6. George W. Cooley, secretary and state engineer of the Minnesota highway commission, is president of the congress and will deliver the principal address. The congress now is composed of Minnesota, Wisconsin, Illinois, North and South Dakota, Iowa

and Michigan. At the coming session Montana, Idaho and Washington are expected to be admitted to membership through their state highway bodies. Besides Mr. Cooley the officers are: John Hazelwood, Wisconsin state highway commission; P. C. McArdle, assistant state highway engineer of Iowa, and Oscar Albertus, South Dakota, vice presidents, and J. P. Kennan of Milwaukee, secretary-treasurer. The board of directors is composed of S. A. Bradt, secretary of the Illinois highway Commission; Thomas McDonald, Iowa state highway engineer; A. R. Hurst, Wisconsin state highway engineer; J. C. Van Doren, Minneapolis; J. B. Hart, North Dakota; S. H. Lee, South Dakota, and H. N. Johnson, Michigan.

Wisconsin Association of Chiefs of Police.

At the annual meeting of the Wisconsin Association of Chiefs of Police held at Milwaukee, August 11 and 12, among the many items of police interest discussed were capital punishment and the honor system. Most of the chiefs did not favor the latter system.

John T. Janssen of Milwaukee was elected president of the association. Thomas Shaughnessy of Madison, vice-president, and Don McKay of Waukesha secretary-treasurer.

Iowa Supervisors.

At the annual convention held at Des Moines August 19, the Iowa Supervisors elected J. H. Gregory, of Dickinson County, president; Frank Voorhies, Ringgold, vice-president; John Walsh, Monroe, secretary; W. P. Hopkins, Pocahontas, treasurer. The Treasurers' Association and the Auditors' Association held their meetings at the same time and place.

The auditors elected the following officers: President, B. S. McCully, Jefferson; vice-president, F. J. Alber, Des Moines; secretary, F. W. Parrott, Burlington; treasurer, Richard Warner, Ida Grove.

The following officers were elected by the treasurers: President, Harry H. Harlan, Sigourney; vice-president, Hugo H. Stahl; secretary, R. E. Johnston, Muscatine; treasurer, H. J. Toenningsen, Clinton.

The supervisors passed the following resolutions:

"That we improve the general working features of the new road law, particularly those providing for a uniform system of highways and for a uniform standard of bridges and road construction.

"That we recommend that the thirty-seventh general assembly enact laws compelling the railroad companies to remove banks and obstructions within their right-of-ways, which obstruct the view at public crossings and endanger the safety of the traveling public.

"That we absolutely oppose any agitation leading up to hard surface roads to be made of concrete, brick or asphalt at the present time.

"That as the report of the Iowa state

highway commission for the year 1914 shows the expenditures to have been excessive and that they be called on to reduce their expenditures to an amount not to exceed \$40,000 per year.

"That we condemn the practice of appointing public officials, state or county, and recommend that all such be elected by a direct vote of the people."

PERSONALS

Andrews, Capt. Walter H., has resigned as mayor of Georgetown, S. C., and H. W. Fraser has succeeded him.

Banford, N. P., former assistant state highway engineer of Oklahoma, has been made highway engineer until October.

Barrett, David R., has been appointed assistant supervisor of streets of Atlantic City, N. J.

Bennett, A. V., for several years chief of the Birmingham, Ala., fire department and for the past year assistant superintendent of the Birmingham Waterworks Company, has been made superintendent of the Little Rock, Ark., Waterworks Company.

Brown, J. E., mayor of Woodsdale, has resigned and J. N. Dowler has been appointed to succeed him.

Campbell, Stanley, has resigned as fire chief of Creswell, Ore., and Carl Leabo has been appointed in his place.

Collins, W. R., chief of the Bristol, Tenn., fire department, has been appointed state fire prevention inspector for that city.

Gallivan, Dr. William J., has resigned as health commissioner of Boston, Mass. Dr. Francis X. Mahoney has been appointed his successor.

Gurion, Dr. Edward, chief of the bureau of health of Atlantic City, N. J., has resigned.

Governor L. B. Hanna of North Dakota has appointed J. P. Paupace, Grand Forks; Otto Mathieson, Thompson; H. R. Dickinson, Reynolds, and T. W. Turner, Dickinson, as delegates to the Pan-American Road Congress.

Higham, Charles, chief of the Middletown, N. Y., fire department, has been appointed special automobile inspector.

Mason, Philip A., has been appointed superintendent of public buildings of Waterville, Me.

May, John R., has resigned as chief of police of Thomasville, N. C., and R. B. Talbut has been appointed to succeed him.

Miller, H. M., has resigned as mayor of Mount Ayr, Ia.

Schofield, Blanche, will represent the New York state department of health as chief of child welfare exhibits at county fairs.

Small, H. F., has been elected electrical inspector of Haverhill, Mass.

Smith, Stephen, has resigned as chief engineer of the Daytona Beach, Fla., waterworks, and H. J. Allen has been elected to succeed him.

Solan, Joseph, has been elected chief of the Hollis, L. I., Fire Department.

ADVANCE CONTRACT NEWS

ADVANCED INFORMATION BIDS ASKED FOR

CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Pa.	Bethlehem	noon, Sept. 11	45,000 sq. yds. 3-inch amiesite on concrete	A. M. Cawley, Boro Engr.
Ind.	Noblesville	10 a.m., Sept. 11	Grading, paving and improving road	W. O. Horton, Co. Aud.
La.	Perry	8 p.m., Sept. 13	7,872 ft. curb and gutter	C. E. Wilson, City Engr.
La.	Waterloo	7.30 p.m., Sept. 13	Constructing concrete sidewalks on several streets	R. L. Degon, City Clk.
Cal.	Los Angeles	Sept. 13	Improving roads	H. J. Lelande, Clerk Supv.
N. J.	Elizabeth	2.30 p.m., Sept. 13	Widening concrete pavement, about 5,418 yds. macadam or Amiesite; 13,720 yds. macadam or Amiesite	J. L. Bauer, Co. Engr.
N. J.	Montclair	8 p.m., Sept. 13	Constructing 17,000 ft. concrete curb	Harry Trippett, Town Clk.
N. J.	Elizabeth	2.30 p.m., Sept. 13	Constructing four miles Amiesite road and making 3,200 yds. excavation	J. L. Bauer, Co. Engr.
Mass.	Boston	Sept. 13	Laying asphalt or bitulithic pavement	E. F. Murphy, Comr. Pub. Wks.
N. J.	Madison	8 p.m., Sept. 13	3,000 yds. Amiesite, Warrenite, asphalt and stone block	J. E. Pierson, Chairman
O.	Upper Sandusky	11 a.m., Sept. 14	Grading and stoning road	U. J. Pfeiffer, Aud.
Wis.	Columbus	3 p.m., Sept. 14	Laying 7,180 yds. bituminous and 1,170 yds. concrete pavement and making 2,750 cu. yds. excavation	Benj. Paepke, City Clk.
O.	Youngstown	Noon, Sept. 14	Grading road	H. C. Fox, Clk., Pub. Serv.
Ind.	Columbus	2 p.m., Sept. 14	Grading, draining and graveling roads	W. H. Scott, Co. Aud.
Del.	Wilmington	Noon, Sept. 14	Constructing and improving two miles of road	James Wilson, State Hwy. Comr.
Wis.	Reedsburg	7.30 p.m., Sept. 14	Paving with brick	W. H. Dierken, City Clk.
Ind.	Shelbyville	2 p.m., Sept. 14	Grading, draining and graveling highways	F. W. Fagel, Co. Aud.
Conn.	Norwalk	Sept. 14	Laying wood block, brick, concrete or Amiesite paving, some around tracks	A. F. Beard, Chr. Bridge Com. County Commissioners.
Ind.	Anderson	Sept. 15	Constructing concrete road	M. M. Marks, Boro. Pres.
N. Y.	New York	2 p.m., Sept. 15	Paving with sheet asphalt, setting curb, etc.	L. H. Pounds, Boro. Pres.
N. Y.	Brooklyn	11 a.m., Sept. 15	Paving with asphalt, setting curbs, etc.	R. J. Cunningham, State Hwy. Comr.
Pa.	Harrisburg	10 a.m., Sept. 15	Const. 34,996 ft. bitu. or conc. pavement, 16 ft. wide	K. A. Scheid, City Recorder
Utah	Salt Lake City	10 a.m., Sept. 15	Paving with bituminous concrete	E. F. Murphy, Comr. Pub. Wks.
Mass.	Boston	Sept. 16	Paving with asphalt or bitulithic	E. F. Murphy, Comr. Pub. Wks.
Mass.	Boston	Sept. 16	Paving with bitulithic	Chas. J. Sanzenbacher, Aud., Toledo
O.	Maumee	10 a.m., Sept. 17	Grading, draining and macadamizing road	Geo. Dupont, Co. Aud.
Minn.	R. Lake Falls	10 a.m., Sept. 17	Constructing state road	Street Assessment Committee
Wis.	Kenosha	2 p.m., Sept. 17	Constructing concrete curb	Frank Thompson, Clk.
N. J.	Trenton	Sept. 17	Street paving	C. J. Sanzenbacher, Co. Aud.
O.	Toledo	10 a.m., Sept. 17	Grading, draining and macadamizing road	C. W. Holmes, Clk. Co. Comm.
Ida.	Council	Sept. 17	Rock work on road	County Supt. of Hways.
Ill.	Canton	2 p.m., Sept. 18	5,500 sq. yds. concrete pavement, and 1,400 cu. yds. excavation	G. T. Haynes, City Clk.
Fla.	De Land	Sept. 18	Constructing cement sidewalks	A. J. Klingenschmidt, Co. Clk.
Kan.	Ellsworth	Sept. 18	Constructing eight miles of road	Roger McGrath, Secy.
Ky.	Louisville	Sept. 19	Improving streets by paving with asphalt & vit. brick	City Clerk
Wis.	Lake Geneva	4 p.m., Sept. 20	Const. vit. brick pavement on sand cushion	H. J. Lelande, Clk.
Cal.	Los Angeles	2 p.m., Sept. 20	Improving road	C. A. Hunt, Clk.
Cal.	Santa Barbara	Sept. 20	Paving road, estimated cost \$17,689	W. D. Lyon, Bluff City.
Tenn.	Knoxville	2 p.m., Sept. 20	Grading, draining and macadamizing road, cost \$90,000	C. M. Dulaney, Engr.
Tenn.	Blountville	Sept. 20	Grading, draining and macadamizing	C. A. Reimer, City Engr.
N. J.	Newark	2 p.m., Sept. 20	Street improvements	S. W. Mahaffey, Dir. P. S.
O.	Conneaut	Noon, Sept. 20	14,400 yds. asph. or brick pavement, 12,000 ft. conc. curb, and 2,550 ft. storm sewer	Al. P. Erickson, Co. Clk.
Minn.	Minneapolis	11 a.m., Sept. 20	10,000 yds. filling or grading	Percy Dale, Clk.
Fla.	Winter Park	Sept. 20	Paving with brick and concrete	A. G. Hyde, City Clk.
Tex.	Taylor	8 p.m., Sept. 21	120,000 yds. pavement (all classes)	H. Waldorf, Rd. Engr.
Md.	Denton	noon, Sept. 21	2.06 miles state aid highway with shell macadam or concrete	Co. Commissioners.
Ala.	Carrollton	Sept. 22	Grading, draining and surfacing with sand-clay or gravel	J. B. Johnson, Secy.
Tenn.	Dunlap	Noon, Sept. 25	Grading, macadamizing or graveling road	County Clerk.
Va.	Eastville	Sept. 27	55 miles sand clay road	S. B. Weeks, Town Clk.
Iowa	Guthrie Center	Sept. 30	30 blocks paving with sheet asphalt, asphaltic concrete, bitulithic, vitrified brick or concrete	
SEWERAGE				
Minn.	Bemidji	10 a.m., Sept. 13	165 miles drainage ditch, cost \$244,142	J. L. George, Co. Aud.
Minn.	Bemidji	2 p.m., Sept. 13	27 miles drainage ditch, cost \$48,000	J. L. George, Co. Aud.
Minn.	Bemidji	3 p.m., Sept. 13	Four miles drainage ditch, cost \$7,174	J. L. George, Co. Aud.
Minn.	Windom	1 p.m., Sept. 13	Constructing drainage ditch	P. G. Neufeld, Clk. Dis. Court.
Wash.	Roslyn	Sept. 13	Sewer improvements in four districts	G. T. Wake, City Clerk.
Pa.	Eddystone	8 p.m., Sept. 13	Constructing 8-in. terra cotta sewer	J. A. Campbell, Council Clk.
Minn.	St. Paul	Sept. 13	Constructing sewer system with pipe 9 ins. to 6 ft. in diameter, estimated cost \$145,000	Aug. Hohenstein, Pur. Agt.
La.	Waterloo	7.30 p.m., Sept. 13	Constructing sewers along several streets, about 1,000 ft.	R. L. Degon, City Clk.
Mich.	Bay City	9 a.m., Sept. 13	Laying 10-in. socket tile sewer	E. E. Prohazka, Sec. B. P. W.
Cal.	San Jose	11 a.m., Sept. 13	Laying sewers	H. A. Pfister, Clk. of Supv.
Wash.	Roslyn	Sept. 13	Sewage improvements in four districts	G. T. Wake, City Clk.
N. J.	Nutley	8 p.m., Sept. 13	Constructing storm sewer	Frank T. Shepard, Twn. Engr.
Mo.	St. Louis	Noon, Sept. 14	Constructing 28,000 ft. 6 to 57-in. tile, vitrified clay, brick and segment block sewers	E. R. Kinsey, Pres. B. P. S.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Minn.	Virginia	8 p.m., Sept. 14	Constructing sanitary sewer	A. E. Bickford, City Clk.
Neb.	Wayne	8 p.m., Sept. 14	Constructing sanitary sewers	J. M. Cherry, City Clk.
Ia.	Clinton	8 p.m., Sept. 14	Constructing sanitary and storm sewers	F. W. Leedham, City Clk.
Fla.	Ocala	Sept. 14	Sewer system, including 120,000 ft. of 6 to 18-in. sewer, 237 manholes, 51 automatic flush tanks and sewage disposal system	H. C. Sistrunk, City Clk.
Mont.	Malta	Sept. 15	Reservoir and drainage canal	U. S. Reclamation Service
O.	Mansfield	Noon, Sept. 15	Constructing sanitary sewer	O. Hursh, Dir. Pub. Service
Cal.	Santa Barbara	Sept. 16	42,500 ft. 6 to 12-in. vit. sewer, cost \$21,000	A. B. Cook, City Engr.
N. Y.	Brooklyn	11 a.m., Sept. 16	1,325 ft. 6 to 18-in. sewer and 7 manholes	L. H. Pounds, Boro. Pres.
Ia.	Muscatine	Sept. 16	About 4,000 ft. 8 to 36-inch sewer	C. H. Young, City Engr.
N. Y.	Brockport	Sept. 17	Constructing sewage disposal works	C. G. Hopkins, Engr., Cutler Bldg., Rochester
Wis.	Kenosha	Sept. 17	Constructing sewers	M. J. Scholey, Chr. St. Asses. Comm.
Wis.	Milwaukee	Sept. 17	Sewer construction, including tunnel section	F. G. Simmons, Comr. P. W.
Minn.	R. Lake Falls	10 a.m., Sept. 17	Const. drainage ditches, canals and culverts	Geo. DuPont, Co. Aud.
Mass.	Boston	Sept. 17	Pipe sewers and drains	E. F. Murphy, Comr. Pub. Wks.
S. D.	Centerville	Sept. 20	Constructing sewerage system	Frank Williams, Mayor
Minn.	Brainerd	Sept. 20	Constructing lateral sewers	A. Mahlum, City Clerk
O.	Port Clinton	Sept. 20	2,000 ft. 22-in. sewer	City Clerk
S. D.	Centerville	Sept. 20	Sewer construction, cost \$25,500	City Clerk
Ore.	Forest Grove	8 p.m., Sept. 21	Sanitary sewer and disposal plant, includes 65,000 ft. 8 to 16-in. pipe, etc.	M. R. Markham, City Rec.
Mont.	Whitehall	Sept. 23	Sewerage system to include Imhoff disposal tank	G. E. Baker, Cons. Engr.
Minn.	Blue Earth	11 a.m., Sept. 24	Constructing county ditch	J. L. Herring, Co. Aud.

WATER SUPPLY

Neb.	Hastings	Sept. 13	Sinking 24-in. well 130 ft.	Light & Water Commission
Ohio	Belleville	noon, Sept. 14	Waterworks, including deep well pump, natural gas engine, distribution system, storage reservoir, etc.	C. L. Shaffer, Vil. Clk.
Mo.	Macon	Sept. 14	Filter plant, setting and coagulating basins, pipes, valves, etc.	C. H. Payson, Mayor.
Ill.	Glenview	8 p.m., Sept. 14	Drilling and casing artesian well	T. A. Larecy, Vil. Clk.
Ind.	Miller	Sept. 15	Water works to cost \$14,000	Town Clerk
Ia.	Salix	Sept. 15	Constructing water works, cost \$10,000	W. L. Bruce, Engr., Yankton, S. D.
Md.	Baltimore	Sept. 15	25 tons flange pipe and 32 tons flange fittings	R. L. Clemmitt, Acting Water Engr.
Okla.	Marshall	Sept. 15	Constructing water works and electric light plant, cost \$25,000	Benham Eng. Co., Okla. City
Kan.	Spearville	Sept. 15	Constructing water works, to include 50,000 gal. elevated tank	Rollins & Co., Engrs., Kansas City, Mo.
N. Y.	Manchester	Sept. 15	Constructing water works system	Board of Village Trustees
O.	Medina	Sept. 15	12,336 ft. of 4-in. pipe, 15 hydrants, 37 valves and 6,800 lbs. special castings	B. E. Elkind, Clk. B. F. A.
Ky.	Covington	Sept. 16	Licking River pipe trenching	J. M. Howk, Comr. Pub. Prop.
Cal.	Oakland	noon, Sept. 16	Tank tower at Industrial Home	W. S. McClure, State Engr., Sacramento
Utah	Myton	Sept. 20	Constructing water works	R. B. Croix, Town Clerk
Mont.	Whitehall	Sept. 23	Water works system, pump, hydrants, pipe, etc.	F. E. McCall, Town Clk.
N. Y.	Central Islip	Noon, Sept. 24	Artesian wells at State Hospital	E. S. Elwood, Sec., Albany
Neb.	Hastings	Sept. 27	Sinking 24-in. well 130 ft.	W. S. Watson, Water Comr.
O.	Wilberforce	10 a.m., Oct. 1	Improving water supply system at University	Board of Trustees

LIGHTING AND POWER

N. J.	Perth Amboy	8 p.m., Sept. 11	110 25-c.p. and 7 80-c.p. lamps	Street Lighting Comrs.
D. C.	Washington	Sept. 13	Motor-driven capstans, switchboards, cables and miscellaneous equipment	Purchasing Agent, 24 State St., New York
Neb.	Leigh	Sept. 13	Electric light plant	E. M. Nelson, City Clk.
Pa.	Tarentum	Sept. 13	500 kw. turbo-generator, switchboard and two motor-driven pumps	S. B. Martin, Engr., 401 Penn Bldg., Pittsburgh
N. Y.	New York	11 a.m., Sept. 13	Furnishing incandescent lamps	Wm. Williams, Comr. W. S. G. & E.
Minn.	St. Paul	10.30 a.m., Sept. 13	Lighting fixtures	Aug. Hohenstein, Pur. Agt.
Ill.	Elizabeth	2.30 p.m., Sept. 13	Furn. & erect 3 miles transmission line, substation & distributing system	A. J. Nichols, Secy.
N. Y.	Brooklyn	11 a.m., Sept. 15	Electric wiring and fixtures to be installed in Borough Hall	L. H. Pounds, Boro. Pres.
N. J.	Millville	3.30 p.m., Sept. 17	Lighting streets for five years	R. B. Conors, Dir. P. S.
Pa.	Williamsport	Sept. 17	Electric lights for ten years	J. A. L. Minor, Supt. St. & P. I.
Neb.	Mason City	2 p.m., Sept. 17	Construction of electric light system	J. T. Wood, Vil. Clk.
Okla.	Adamson	Sept. 20	Electric light plant	Frank Mann, Engr.
Kan.	Parker	Sept. 20	Electric light plant	O. C. Conrad, City Clk.
N. C.	Hickory	Oct. 12	Lighting streets and operating electric plant	S. C. Cornwell, City Mgr.
D. C.	Washington	10 a.m., Nov. 17	Central light and power plant	Supervising Architect

FIRE EQUIPMENT

Kan.	Columbus	Sept. 16	Combination hose and chemical	F. H. Hawkins, City Clk.
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BRIDGES

Kan.	Burlington	10 a.m., Sept. 11	Abutment and wing wall for bridge	A. Fields, Chr. Co. Comrs.
W. Va.	Berkeley Springs	Sept. 11	90-ft. concrete bridge	M. S. Harmison, Clk. of Court.
Idaho	Hailey	10 a.m., Sept. 13	Four steel bridges, 24 to 60-ft. span	G. A. McLeod, Clk. Co. Comrs.
O.	Hamilton	10 a.m., Sept. 13	Steel or concrete bridge over Miami River	W. W. Crawford, Co. Aud.
N. J.	Elizabeth	2.30 p.m., Sept. 13	60-foot span bridge	J. L. Bauer, Co. Engr.
Ill.	Chicago	noon, Sept. 13	Constructing and extending breakwater	J. F. Neil, Sec. So. Park Comrs.
Pa.	Media	10 a.m., Sept. 13	Constructing reinforced concrete bridge	O. L. Davis, Controller
Cal.	San Jose	11 a.m., Sept. 13	Constructing two reinforced concrete bridges	H. A. Pfister, Clk. of Supv.
O.	Norwalk	10.30 a.m., Sept. 14	Improving bridge	C. E. Bloomer, Co. Aud.
O.	Youngstown	Noon, Sept. 14	Constructing steel bridge and removing old bridge	H. C. Fox, Clk. Public Serv.
Minn.	Breckenridge	10 a.m., Sept. 14	Nine steel bridges	E. E. Traux, Co. Aud.
N. Y.	Albany	Noon, Sept. 14	Constructing two highway bridges and a harbor and dock wall	W. W. Wotherspoon, Supt. P. W.
W. Va.	Keyser	Sept. 14	Two reinforced concrete bridges, 30 and 50-ft. span	J. V. Bell, Co. Clk.
Kan.	Mankato	noon, Sept. 14	Constructing five bridges and repairing eleven	State Engr. Manhattan, Kan.
N. Y.	Buffalo	Sept. 15	Steel bridge over Pennsylvania Railroad	E. B. Guthrie, 436 Ellicott Sq.
Pa.	Pottsville	10 a.m., Sept. 15	Repairing bridge and erecting three bridges	J. E. Kantner, Co. Controller.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Pa.	Beaver	Noon, Sept. 15	Repairing abutments & const. reinforced conc. bridge	Comrs. of Beaver Co.
O.	Steubenville	noon, Sept. 17	Concrete arch bridge	J. L. Means, Co. Aud.
O.	Akron	11 a.m., Sept. 17	Substructure of bridge	C. L. Bower, Co. Aud.
O.	Ashland	noon, Sept. 17	Constructing and repairing five bridges	R. T. Scantlebury, Engr.
O.	Xenia	11 a.m., Sept. 17	Reconstructing floor systems and laying wood block on two bridges	G. W. Kendall, Clk. Co. Comm.
Pa.	Bangor	Sept. 17	Constructing reinforced concrete bridge	H. C. Dillard, Co. Engr.
O.	Cincinnati	Noon, Sept. 17	Constructing two concrete bridges	Albert Reinhardt, Clk. of Comrs.
O.	Columbus	Noon, Sept. 17	Constructing bridge; paving bridge	John Scott, Clk. Co. Comrs.
O.	Steubenville	Noon, Sept. 17	Concrete arch bridge No. 33	J. L. Means, Co. Aud.
Kan.	Ellsworth	Sept. 18	280-ft. steel & conc. bridge; repairing 250-ft. steel bridge	G. R. Wolf, Co. Engr.
O.	Delphos	Noon, Sept. 18	Seven 100-ft. steel bridges and smaller bridges	S. S. Breckenridge, Secy., 1st Nat. Bk. Bldg.
Kan.	Oswego	Sept. 20	Two concrete arch bridges	F. Barnes, Clk.
O.	New Lexington	10 a.m., Sept. 20	Constructing bridge	C. M. Foraker, Aud.
Conn.	Westport	2 p.m., Sept. 22	Bridge construction	C. J. Bennett, State Hwy. Comr., Harrisburg, Pa.
O.	Delphos	noon, Sept. 22	Constructing street bridges	H. J. Lawler, Co. Aud., Lima.
O.	Canton	10 a.m., Sept. 24	Reconstructing floor system of steel bridge	Co. Comrs.
China	Hankow	Sept. 25	Supplying 845 tons steel bridges	R. W. Hunt & Co., Monongahela Bldg., Pittsburgh, Pa.
Pa.	Greensburg	noon, Sept. 29	Erecting plate girder bridge; removing old bridge	Harry Kisinger, Co. Controller.
Wyo.	Newcastle	2 p.m., Oct. 5	Constructing wooden bridge	W. H. Dobson, Clk. Co. Comrs.
Kan.	Lawrence	Oct. 6	Constructing steel bridges	H. Broecker, Co. Clk.

MISCELLANEOUS

Cal.	San Jose	11 a.m., Sept. 13	9,648 cu. yds. crushed rock	H. A. Pfister, Clk. of Supv.
Cal.	Pasadena	7.30 p.m., Sept. 13	Light-weight 5-passenger automobile	N. G. Felker, Clk. Bd. Ed. District Comrs.
D. C.	Washington	2 p.m., Sept. 20	Constructing retaining wall	
N. Y.	New York	11 a.m., Sept. 21	One 3-ton motor truck chassis and from one to ten 1½-ton motor truck chassis	Col. A. L. Smith, Depot Q. M., Army Bldg.

STREETS AND ROADS

Montgomery, Ala.—The House has passed bill providing system of trunk highways in the state. This bill passed senate two weeks ago. As is known, the bill provides for construction of system of trunk roads extending in all directions throughout the state. Nearly every county seat is touched by trunk system, and it is made imperative in bill for counties to follow proposed plan before receiving aid from state for construction of other roads.

Vernon, Ala.—Lamar County Commissioners are considering expending \$150,000 for road construction.

Harrison, Ark.—The supervisor of Ozark National Forest at Harrison, Ark., has just been authorized by district forester at Washington, D. C., to start immediate construction of 9 miles of road in that portion of Ozark forest lying in Pope County. Road to be improved is to be joined through Dover to the 26-mile macadam highway from Russellville through Dover, Scottville and Hector to be built by improvement district, for which \$100,000 contract has already been let.

Douglas, Ariz.—It is highly improbable that election can be held before latter part of December to determine whether Cochise County wishes to bond herself to complete system of county roads.

Phoenix, Ariz.—Yuma County has voted \$500,000 for highway construction, and improvement of Borderland will be one of first things taken up.

Alameda, Cal.—In order to obtain permanent improvements of local streets City Council has decided that in next tax rate there will be special fund of 50 cts. on each \$100 valuation, or about \$100,000. This will be utilized in new street work, but Council has not yet decided on what thoroughfares money will be expended.

Sacramento, Cal.—Report of Road Selection Committee appointed by Sacramento Good Roads Association Aug. 26 was placed before General Committee and unanimously adopted. Lynn C. Simpson, chairman of the Road Selection Committee, explained that 148 miles of road proposed to be constructed under proposed bond issue had been routed after much study and consideration given to every question of necessity or benefit.

Sacramento, Cal.—State Highway Commission, as means of education to residents of Humboldt County, who soon propose to vote on road bond issue, has agreed to construct several miles of first-class road between Beatrice and Lolita. Road along this section is over clay ground, and only first-class road will permit traffic during winter time. Cost of this construction will be about \$25,000. Commission also has voted to ex-

pend \$40,000 toward construction of bridge over Eel River, in Humboldt County.

San Francisco, Cal.—Plans for curbing and paving and sewerage large area in San Bruno have been adopted by City Trustees and work will be started just as soon as preliminary legal steps have been taken.

San Francisco, Cal.—Board of Works has begun proceedings to have following work done, estimated cost being given: Paving Athens St., between Russia and Amazon Aves., \$21,650; paving Andover St., between Cortland and Park, \$3,523; paving Worth St., between 21st and 22d, \$3,995; laying sidewalks on Taylor St., between Bay and Jefferson St., \$2,390.

San Francisco, Cal.—The design of ocean beach esplanade has been completed by City Engineer O'Shaughnessy, who reports that bids will soon be invited for construction of first unit, which is to be built along beach for 650 ft. from a point near terminus of Cabrillo St. Appropriation of \$50,000 has been made by Supervisors for first section. City Engineer estimates cost of its construction at \$48,500. Intention is to build additional section each year. The Chamber of Commerce, which initiated project, figured cost of esplanade for whole length of beach at \$1,000,000.

San Jose, Cal.—Construction of paved thoroughfare from business district to connect with traffic coming into city is urged.

Stockton, Cal.—Several bids for road improvement work in this county were opened at session of Board of Supervisors Aug. 31st. On Jack Tone road following bids were received and taken under advisement: A. B. Munson, gravel, \$13,366.08; sand, \$8,589.90. Cy Moreing, gravel, \$1,788.08; sand, \$8,589.90. F. C. McIntire, gravel, \$11,382.18; sand, \$7,630.88. R. R. Johnston, gravel, \$7,497.45. Johnson later notified supervisors that he had made mistake in compiling figures which called for sand and gravel. The Murphys Ferry road bids for grading and graveling were: Cy Moreing, gravel \$13,512.95, sand \$9,745.40; A. B. Munson, gravel \$15,466.17, sand \$9,745.40; R. R. Johnston, gravel \$8,238.55. Johnson made same mistake with this bid as he did with one which pertains to Jack Tone road, getting his figures on sand and gravel mixed. Cy Moreing was only bidder for work on West lane and Weber road. On West lane his bid was \$5,020 and on Weber road \$9,728. This includes work for graveling, grading, oiling, etc.

Ventura, Cal.—A million-dollar good roads bond issue has been carried by vote of 4,387 to 446. Money will be expended in building main line roads of the county.

Eustis Fla.—City will vote Oct. 5 on issuing \$40,000 bonds for street paving.

Canton, Ill.—Owing to misunderstanding as to specifications for East Chestnut hard road, resulting in decided variance in bids submitted, contract was not awarded. Bids were submitted by Sutton & Moore of this city, the Carpenter Construction Co., now working on the hard road extensions here, and Irwin & Alford, of Cuba. New bids will be asked for at once.

Pekin, Ill.—Ordinances for paving of alley in rear of Schipper & Block's and one in rear of Sarff meat market were passed Aug. 30 at regular meeting of City Council. Estimate on alley in rear of Sarff's is as follows: 450 sq. yds. paving, \$787.50; 225 cu. yds. excavating, \$101.25; court costs, etc., \$53.35; total, \$942.10. Estimate for Schipper & Block alley is: 462 sq. yds. paving, \$808.50; 94 cu. yds. excavating, \$42.30; 462 yds. paving removed, \$46.20; 10 ft. marginal curb, \$2.50; court costs, etc., \$52.47; total, \$952.97.

Springfield, Ill.—Specifications for paving of 4th St. between Monroe St. and Madison St. with creosoted blocks will be presented to Council in form of ordinance. An ordinance making provision for retaining walls in S. 6th St. subway under Wabash R. R. will be brought up for passage. The improvement will cost \$3,000.

Madison, Ind.—City will soon receive bids for paving of about ¼ mile of street. John W. Moore is Cons. Engr., 607 Merchants Bank Bldg., Indianapolis, Ind.

Clinton, Ia.—Eight blocks of new pavement for Clinton is on schedule for 1916 building season. These are as follows: First St., from Fourth to Seventh Aves.; Fourth Ave., from First to Second Sts.; Fifth Ave., from First to Second Sts.; Sixth Ave., from First to Third Sts.; Seventh Ave., from First to Second Sts. Council is planning to do work as early in 1916 as is practicable, however, together with repaving of other blocks mentioned, where old paving is uneven and defective.

Des Moines, Ia.—Iowa is in midst of campaign for 2,000 miles of paved roads, to pay for which bond issue of \$20,000,000 is proposed, that is, \$10,000 a mile, by Greater Iowa Association, headed by Wilbur W. Marsh, democratic national committeeman for Iowa.

Lawrence, Kan.—All bids received for paving of alley back of Bowersock Opera House have been rejected and new bids will be advertised for to be received by September 13th.

Leavenworth, Kan.—A plan being worked out by County Engineer Walter V. Thomas, if put into effect in Leavenworth County, will mean net work of good roads, including township highways as well as county roads. Mr. Thomas is working on plan to bring township trustees, who have charge of road

work, together and by co-operating with them he hopes to lift standard of highways throughout various townships.

Newton, Kan.—Resolution providing for paving of E. Broadway between Kansas Ave. and Logan St. and Ash St. between Broadway and 7th St. has been adopted. Ordinance providing for paving of 4th St. between Kansas Ave. and boundary street, on 5th between the Santa Fe and Missouri Pacific, and on 7th St. between Kansas Ave. and Logan St., has also been adopted.

Wichita, Kan.—Sedgewick County is preparing to have smoothest roads in state. Commissioners have voted to buy 50 road drags, which will be pulled by motors as well as horses. For every two road drags townships in county buy, commissioners will purchase one drag. It will take fifty drags to do this.

Columbia, Ky.—Adair County Commissioners have ordered election Sept. 11 on issuing \$25,000 bonds for road construction.

Lexington, Ky.—The executive committee of Fayette County Good Roads Association will hold meeting at which time committee will consider names to be submitted to fiscal court for members of commission which will have supervision of expenditure of \$300,000 bond issue to be voted by people of county for road improvements.

Louisville, Ky.—Word comes from southeastern mountain section through Robert E. Woods, director general of Kentucky Good Roads Association, that there is being promoted a new inter-county highway in that section from Whitesburg through Letcher, Perry, Breathitt, Lee and Estill Counties to Richmond, in Madison County, where a connection with eastern division of the Dixie Highway would be made. This is through one of the hilliest sections of State.

Louisville, Ky.—Louisville good roads advocates have received news of launching of project on part of Breathitt Co. enthusiasts for highway to connect Whitesburg, in Letcher Co., with Richmond and Dixie highway, and designed ultimately to supply artery of travel through mountains to Virginia and East. Road may be known as Mountain Highway.

Whitesburg, Ky.—A movement is afoot here to build model roadway from Whitesburg via Colson to Hindman, county seat of Knott Co., 26 miles. Knott Co. it is said, proposes to construct road as far as Colson, which is about 16 miles of the distance. Letcher would only have to build about 10 miles of road.

Augusta, Me.—State Highway Commission opened bids Aug. 26 on contracts for five new highway bridges and two miles of state highway. No awards have yet been indicated. The bids were as follows: Highway S. Poland, length 2.1 miles. Small & Ingalls, Bar Harbor, \$13,275.30. Jas. H. Kerr, Rumpford, \$13,193.02. Noyes & Campbell, Augusta, \$13,904.90. Jas. McGregor, Rumpford, \$11,882.60. Marco Lavorgna, Canton, \$11,999.20. R. G. Miller Cont. Co., Hartford, Conn. (informal bid), \$13,179.05. Milo Concrete Bridge—E. T. Hartwell, Old Town (lump sum), \$5,427; per cy., extra Con., \$9; per cy., Ex. Fill., 75 cts. Hobart & Richardson, Old Town (lump sum), \$7,016 per cy., extra Con., \$12; per cy., Ex. Fill., 85 cts. John Connor, Old Town (lump sum), \$4,832; per cy., extra Con., \$6.50; per cy., Ex. Fill., 75 cts. Cyr. Bros., Waterville, \$4,900; per cy., extra Con., \$10; per cy., Ex. Fill., \$1. Small & Ingalls, Bar Harbor (lump sum), \$5,359; per cy., extra Con., \$12; per cy., Ex. Fill., \$1.50. H. A. Brawn, Foxcroft (lump sum), \$6,500; per cy., extra Con., \$10; per cy., Ex. Fill., 83 cts. Sanders Eng. Co., Portland, \$5,980; per cy., extra Con., \$14; per cy., Ex. Fill., 75 cts. Noyes & Campbell, Augusta, \$7,790; per cy., extra Con., \$20; per cy., Ex. Fill., \$1. Frankfort Concrete Bridge—Small & Ingalls, Bar Harbor, Conc. Masonry, \$3,450; St. Masonry, \$2,900. Cyr Bros., Waterville, Conc. Masonry, \$2,972.50; St. Masonry, \$2,972.50. Noyes & Campbell, Augusta, Conc. Masonry, \$4,785. John H. Young, Winterport, \$3,480; St. Masonry, \$2,900. J. & J. T. Mullen, Bangor, \$3,262.50; St. Masonry, \$3,480. Montville Concrete Bridge—E. L. Gerald, Clinton, \$2,163.75. Sanders Eng. Co., Portland, \$2,985.72. Noyes & Campbell, Augusta, \$3,595.40. Edmund Cyr & Co., \$2,588. Dallas Pitt Concrete Bridge—Small & Ingalls, \$3,858. Sanders Eng. Co., \$3,100. Edmund Cyr & Co., \$2,843. Crystal Pitt Steel Bridge—Penn Bridge Co., Beaver Falls, Pa., \$1,490. Canton Bridge Co., Attleboro, Mass., \$1,340.

Boston Bridge Works, Boston, Mass., \$1,948. United Const. Co., Albany, N. Y., \$1,436.

Swampscott, Mass.—By almost unanimous vote, citizens of Swampscott have voted upon recommendation of committee on ways and means to authorize crete roadway on Humphrey St. from surveyor of highways to construct Commonwealth Ave. easterly as far as appropriation of \$6,000 would go, and to put remainder of roadway from stopping point of concrete pavement to Phillips' Corner in a passable condition with dirt pavement.

Eveleth, Minn.—Additional municipal work amounting to upward of \$40,000 was ordered done by city council at special meeting held Aug. 30. All work provided for in 1915 levy has been completed and improvements ordered will be levied in 1916 budget. The additional work includes sidewalks, storm sewers, water main replacements, service pipes and paving. The reason for having work done at this time was that council believes it will be matter of economy. Work will simply be added onto contracts held by Eveleth Construction Co. and Lawrence-McCann Co. and no bids will be advertised for. The Lawrence-McCann Co. will lay two and a half blocks of creosoted block paving on Adams Ave. from end of present paving north to crest of hill. The price for the work will be same as that paid for paving on Monroe and Hayes Sts. and work will be considered part of that contract. Approximate cost of paving will be \$7,000. The Lawrence-McCann Co.'s storm sewer contracts were extended to include storm sewer on Douglas Ave. to take care of water from Hayes, Jackson, Jones and Pierce Sts. Estimate on this job is \$10,400. On Jones St. storm sewer will be laid east of Adams Ave. at a cost of \$4,500 and water service pipes will be laid on Jones, Jackson and Pierce Sts. east of Adams Ave. at a cost of \$2,150.

Carthage, Mo.—Resolutions have been adopted for construction of curbs and gutters of sawed limestone in various streets.

Jefferson City, Mo.—Special committee of property owners has recommended that bitulithic paving be used in resurfacing of High and Madison Sts.

Joplin, Mo.—A road campaign will start shortly in Cherokee County.

Joplin, Mo.—Ordinances have been passed declaring work necessary and orders made advertising for bids on oiling following streets: Empire, from 18th to 22d; Jackson, from C to 4th; 7th, from Joplin to Locust; A, from Sergeant to Jackson; Carter, from 17th to 20th.

St. Joseph, Mo.—Ordinance has been passed providing for issue and sale of improvement bonds to amount of \$12,000 of City of St. Joseph, Mo., for purpose of improving and extending asphalt plant in said city. Also ordinance providing for issue and sale of improvement bonds to amount of \$125,000 for purpose of improving and repairing public streets and highways in said city, and ordinance providing for issue and sale of improvement bonds to the amount of \$10,000 for purpose of purchasing street flushing equipment in said city.

Fremont, Neb.—Council has voted to purchase an engine and road grader. City Clerk De La Matyr has been instructed to advertise for bids.

Bridgeton, N. J.—Appropriation of \$5,000 has been made for permanent improvement of streets.

Jersey City, N. J.—Looking forward to day when Hackensack meadows between city streets and river will be transformed into hive of industry, commissioners have passed resolution authorizing expenditure of \$25,000 to lay street 100 ft. wide a few hundred feet from shore of Hackensack. Property owners of meadows for distance of several miles will give enough of their land to complete street. Commissioner Henry Byrne, one of heaviest realty owners there, will give generous portion of his holdings. After street improvement commissioner expects to prepare for connecting railroad.

Millville, N. J.—Director of Revenue and Finance R. B. Whitaker is engaged in determining just how much it will cost city and also whether it will be advisable to place \$25,000 bond issue on market. Issue would be for ten years and money thus obtained would be used for improvement of all streets in city of Millville.

Newark, N. J.—City Comptroller Tyler Parmlly has sold \$300,000 six months paving bonds to Goldman, Sachs & Co., and

Salomon Bros. & Hutzler, both of New York, at rate of interest of 2.95 per cent.

Newark, N. J.—A request to Union County Board of Freeholders for widening of amiesite pavement in North Broad St., from Williamson to Hollywood Ave., Hillside, will be made by Township Committee of that place.

Perth Amboy, N. J.—Ordinance has been passed to pave Catalpa Ave. from Brighton Ave. to Lewis St. with 2-in. asphalt blocks with appurtenances.

Perth Amboy, N. J.—Bids for paving Watson Ave. from Fayette St. to Market St.; Hall Ave. from State St. to Catherine St.; High St. from Market Sq. to the southerly end; Brighton Ave. from Gordon St. to Lewis St.; Catalpa Ave. from Brighton Ave. to Lewis St.; First St. from Market St. to Gordon St., with 2-in. asphalt blocks, and Commerce St. from State St. to High St. with 2-in. asphalt blocks, and from High St. to Staten Island Sound with vitrified paving bricks, have been received and opened as follows: Barber Asphalt Paving Co.—Excavation, per cu. yd., 60 cts.; concrete in place, per cu. yd., \$5.25; old curb reset, per lin. ft., 45 cts.; new curb, per lin. ft., 90 cts.; asphalt block, per sq. yd., \$1.31; brick, per sq. yd., \$2.25. Hastings Pavement Co.—Excavation, 69 cts.; concrete, \$5.34; old curb, 39 cts.; new curb, 78 cts.; asphalt block, \$1.27; brick, \$1.54. Oliver W. Ramsay.—Excavation, 60 cts.; concrete, \$4.90; old curb reset, 35 cts.; new curb, 70 cts.; asphalt block, \$1.29; brick, \$1.75. Liddle & Pfeiffer.—Excavation, 58 cts.; concrete, \$5.30; old curb, 35 cts.; new curb, 70 cts.; brick, \$1.64. A motion prevailed that bids for street paving be referred to street committee.

Perth Amboy, N. J.—Bids are being received for \$138,000 street bonds and \$38,000 park bonds.

Pompton Lakes, N. J.—Council has passed on first reading ordinance providing new street to be called Colfax Ave. It will unite Lakeside with Schuyler Aves. The council will sit Sept. 20 in Borough Hall to hear any possible objection to project.

Trenton, N. J.—Board has adopted resolution approving plans and specifications for construction of Hightstown-Princeton Junction Rd. Plans will now be submitted to State Road Department for approval. Plans and specifications were approved last March or April.

Albany, N. Y.—The Blauvelt proposal intended to provide for construction of incomplete links on through state highways by authorizing a redistribution of \$2,200,000 of the second \$50,000,000 good road bond issue has been adopted by constitutional convention.

Brooklyn, N. Y.—Final authorizations were given at last meeting of Board of Estimate for sixteen highway and sewer improvements for Brooklyn, to cost \$67,000, and for three in Queens, to cost \$98,700, and preliminary authorizations for Brooklyn, to cost \$13,400.

Huntington, L. I., N. Y.—Following application of property owners on road from Centerport Cove road along shore of Bay to have it taken over as town highway, Superintendent of Highways Edward Smith has drawn up set of specifications, naming various conditions and improvements that will have to be made before town will accept it.

New York City, N. Y.—Proposition of widening of Broadway through Third Ward in Queens to 100-foot boulevard is about to be considered by Board of Estimate.

Rochester, N. Y.—Bids will be received until 11 a. m., Sept. 8, for Frank St. asphalt pavement and Grover St. asphalt pavement. F. X. Pifer is secretary.

Yonkers, N. Y.—Village trustees of Dobbs Ferry have called special election for Sept. 8 to vote on expenditure of \$150,000 to pave 75 per cent. of streets now unpaved. Two miles of streets are part of old Albany Post Rd., and if proposition is carried paving of this part will make continuous paved road of 27 miles from the Battery, New York, to north line of Dobbs Ferry.

Farmville, N. C.—Pitt County, Farmville Township, will vote Sept. 21 on issuing \$50,000 bonds for road improvements.

Newbern, N. C.—Craven County Board of Commissioners at special meeting has decided to build more than 20 miles of road in this county at cost of more than \$100,000. The material which commissioners now have in view for this road building consists of Cape Fear gravel, which will be covered with a coating of tarvia.

Cincinnati, O.—Efforts are being put forth by Cincinnati Chamber of Commerce to include Cincinnati on Pike's Peak ocean-to-ocean highway, thus duplicating its feat in connection with Dixie Highway.

Columbus, O.—Work of improving East Long and East Main Sts. will be commenced within a week.

Hamilton, O.—Repair of Hamilton-Millville road will be requested of State Highway Department by Engineer Hammerle on instructions of commissioners.

Marion, O.—Six per cent bonds of Kan- nel free turnpike amounting to \$20,- 500 have been sold by pike commission- ers at office of John H. Clark, to Sidney Spitzer & Co. on their bid of par, ac- crued interest and premium of \$387.50.

Salem, O.—A roadway, 14 ft. in width, constructed of large paving bricks laid on bed of concrete, is recommended which will be made to Columbiana Coun- ty Commissioners to be type of road- way for Lincoln Highway in this county.

Salem, O.—Bonds for road improve- ment, totaling \$194,000 were sold throughout Columbiana county Sept. 1, bonds for improvements in St. Clair, Yel- low Creek, Center, Wayne, Elkrun and Salem townships being awarded.

Ardmore, Pa.—Sum of \$50,000 has been appropriated to Highway Committee by Lower Marion township commissioners for road maintenance and repairs. This is part of the annual appropriation. Commissioners have also voted to con- struct a four-foot brick sewer on Elm and Walnut avenues, in South Ardmore, section recently built up.

Beaver, Pa.—Beaver Falls City Council may pave 7th Ave. hill with hillside paving block.

Connellsville, Pa.—Plans for better highways are being made.

Erie, Pa.—Ordinance has been passed providing for grading, draining and curbing, on both sides of the roadway, of Poplar St., from 29th St. to 32d St.

Marcus Hook, Pa.—Borough of Marcus Hook is asking for bids for doing 7,000 sq. yds. of street paving and 800 sq. yds. of concrete gutters. Bids are to be in hands of engineer by Sept. 6 and it is understood that if bids are low enough contracts will be let and work started so as to improve more of borough streets before winter weather sets in.

Philadelphia, Pa.—Bids for widening, grading, paving and repaving of more than 90 streets, to cost approximately \$475,000, were opened by Bureau of High- ways Aug. 31 and contracts therefor will be let within a week. Work will be started this month. For improvement of Passyunk Ave. between 23d and 28th Sts., Senator Edwin H. Vare was com- puted to be low bidder, at about \$50,- 000, as he was for repairing of this same avenue from South St. to 21st St., now under way, at \$115,600.

Philadelphia, Pa.—Bids submitted by number of contractors for improving Washington and Cornelius Squares and Vernon Park, Germantown, were opened Sept. 1 in Bureau of City Property. The low bidder for the Washington Square work was William A. Mundy, whose bid was \$7,000. M. J. B. McHugh submit- ted a proposal for \$9,500, while M. S. Marklay asked \$7,272 for the work. The bids for the Vernon Park work were from Edward Fahy & Son, \$4,148; Wil- liam A. Mundy, \$4,421; Eugene Tourison, \$4,810, and James Connor, \$4,443. There is \$35,000 available for the work in the three parks.

Philadelphia, Pa.—Preliminary to re- moval of tracks of Baltimore & Ohio R. R. from Oregon Ave., contract for grading that thoroughfare between 13th and 20th Sts. will be advertised.

Westmont, Pa.—In accordance with or- dinance of Borough of Westmont, seal- ed proposals will be received by Bor- ough Treasurer until 2 o'clock p. m., Monday, October 4, 1915, for purchase of \$15,000 improvement bonds of 1915, said bonds bearing interest at rate of 5% per annum payable semi-annually.

Sumter, S. C.—Plan to issue \$225,000 bonds to pave streets and sidewalks of city is being discussed.

Cumberland Gap, Tenn.—The specifica- tion and proposal blanks for construc- tion of roads in Claiborne County drawn by W. A. Park, of Knoxville, consult- ing engineer, are in the hands of J. H. S. Morison, chairman of commission, and bids on this work will be received with- in next few days. Claiborne County will expend \$372,000 on its roads from recent bond issue that was sold. The road com- missioners are J. H. S. Morison, chair-

man; G. W. Montgomery, J. C. Campbell, C. R. Fulton, T. B. Carr. Division engi- neers are J. J. Gault and I. N. Breeding; consulting engineer, W. A. Park, of Knoxville. Specifications call for water- bound macadam roads of best type and go into detail as to size and kind of stone to be used also as to grading and drainage of roads. Contracts will be awarded during early part of Septem- ber and work will start at once. One of contracts to be awarded is part of Dixie highway via Cumberland Gap and Knox- ville on to Chattanooga, known as the eastern route.

Knoxville, Tenn.—Knox County Good Road Commission may do some perma- nent road building in Knox County. A motion has been made, which was car- ried, requesting that government to fur- nish government expert to consult in re- gard to construction of permanent roads in Knox County.

Loudon, Tenn.—By vote of nine to one, County Court of Loudon County, in spe- cial session, has voted to issue \$12,000 in county warrants to complete Dixie highway link to Loudon County line.

Corpus Christi, Tex.—A paved road- way to causeway is a strong possibility. It is known that county and city are considering paving of N. Water St. and Timon Blvd. with Tarvia paving, to con- nect up with bitulithic that city will pave as far north as Dan Reid St. Under present contract city will connect present Chaparral St. paving at Laguna St. in- tersection and carry bitulithic out that street as far as Resaca, then on Water to Dan Reid. It is then proposed to pave as far as 10th St., then across Sap tracks to Timon Blvd. and out boulevard to city limits, all of this paving to be of Tarvia. County will then carry paving work to causeway. As causeway will be paved with Tarvia, it will mean prac- tically paved street from Corpus Christi to Portland.

Corpus Christi, Tex.—City is now ready to proceed with paving of approximately five miles of street paving, work to cost approximately \$225,000, city paying one- fourth of cost of paving in front of private property and all of costs for street intersections, having voted and sold bonds in amount of \$100,000 for this purpose.

El Paso, Tex.—El Paso is about to enter upon greatest era of street paving the city has ever known. The new work will represent outlay of between \$250,- 000 and \$260,000, and will not be con- fined to any one section of the city. The following work has been approved and will be done under the new plan: Texas St., between Cotton and Alameda Aves., 8 blocks, or 3,760 ft. Piedras St., between Bliss St. and Magoffin Ave., 12 blocks, or 4,440 ft. W. Nevada St., between Oregon and Los Angeles Sts., three blocks, or 1,200 ft. E. Rio Grande St., between Magnolia and Piedras Sts., five blocks, or 2,350 ft. E. Nevada St., be- tween St. Vrain and Wright Sts., six blocks, or 2,460 ft. Prospect Ave., be- tween Upson Ave. and West Boulevard, 6 blocks, or 2,520 ft. Myrtle Ave., be- tween Ange and Eucalyptus Sts., 10 blocks, or 4,700 feet. Blacker street, be- tween Mesa avenue and Ange St., 8 blocks, or 2,640 ft. Stevens Ave., be- tween the G. H. & S. A. reservation and the Franklin canal, 4 blocks, or 1,480 ft. Federal St., between Kentucky and Louisiana Aves., two blocks, or 940 ft. S. Kansas St., between 1st and 8th Sts., 7 blocks, or 2,310 ft. Newman St., be- tween Montana and Nevada streets, three blocks, or 990 ft. East Rio Grande St., between Newman St. and Cotton Ave., six blocks, or 2,820 ft. East Boulevard, between Cotton Ave. and Piedras Sts., 10 blocks, or 4,700 ft. These contem- plated improvements total 90 blocks, 37,- 310 ft., or about 7.06 miles.

El Paso, Tex.—Petition of 87 taxpayers of El Paso County for calling of elec- tion for road bond issue of \$300,000, ques- tion was favorably acted upon by com- missioners and date for election set as Oct. 5.

San Antonio, Tex.—Street Commis- sioner C. H. Kearney and City Paving Engineer E. A. Kingsley of San An- tonio, accompanied by W. H. McDonald, superintendent of the Roach & Mani- gan Paving Co. at San Antonio, are visit- ing in Fort Worth to get "tips" on ex- penditure of approximately \$8,000,000 on street and sewer improvements. They called at city hall and inspected Fort Worth's street and sewer systems. San Antonio recently voted \$3,500,000 for street paving and sewer bonds. City pays one-third of the expense of street paving plus intersections, and the prop- erty owners pay two-thirds. Property

owners' share of the expense added to the city's contemplated expenditure will total \$8,000,000. In Fort Worth, city pays for intersections alone. San Antonio's plan contemplates paving of 80 miles of streets. Already 35 miles of new work is completed.

Seattle, Wash.—Resolutions have been adopted for improvement of various streets.

Odanah, Wis.—A \$50,000 road appro- priation for Bad River reservation is be- ing sought for by representative In- dians of Odanah. Every effort is to be put forward at next session of Con- gress to have appropriation made. Road contemplated if money is available is south from Odanah to some point on South Shore track and branches to each part of reservation, under which entire farming land will be connected with good roads.

CONTRACTS AWARDED.

Birmingham, Ala.—The Southern As- phalt & Construction Co., of which Eu- gene Fies is president, has just closed up three contracts. Company got con- tract for paving in Columbia, Tenn., which amounts to about \$50,000. This work will be done with sheet asphalt. Another contract secured is in Sara- sota, Fla., amounting to \$70,000. The third is with the city of Greenville, Tenn., amounting to \$60,000. The two latter cities will use asphaltic concrete.

Vernon, Ala.—By Lamar County Com- missioners, to G. B. Edgar, Vernon, to grade and gravel roads. P. S. Milner is Engineer.

Stockton, Cal.—The City Council Aug. 27 awarded contract for the improvement of East Market St., from Fair Oaks Ave. to Filbert St., with asphalt concrete, concrete sidewalks and concrete curbs and gutters to Ransom-Crummey Co., of Oakland, who bid \$26,025.25 for job. Other bidders were Guy T. Covault, \$28,- 973.90; Clark & Henery, \$32,624.03, and the Federal Construction Co., \$32,999.27.

Connecticut.—Following contracts have been awarded by State Highway Com- missioner Charles J. Bennett: Town of Marlborough: Section of graded road and construction of reinforced concrete bridge to the Goodman & Trumbull Co., Litchfield, Conn., for approximately \$3,- 827.65. Borough of Danielson, about 2,- 590 ft. of amiesite pavement in the town of Killingly, on Main St., to the Conn. & R. I. Co., Meriden, Conn., for an approxi- mate cost of \$8,825. Town of Newtown: A section of native stone macadam road on the lower road to the Kellogg & Gregory Co., Danbury, Conn. (Total amount available, \$7,878.61, which must not be exceeded). Town of Durham: A section of 2-in. bituminous macadam pavement on the Middlefield road to F. A. Arrigoni & Bro., Middletown, Conn., at an approximate cost of \$7,360.25. Town of Southington: About 6,200 ft. of 2-in. bituminous pavement on Meriden Ave., to Leonardo Suzio, Meriden, Conn., for approximately \$8,506.83. Town of Waterford: A section of native stone macadam road, amount of money avail- able \$8,684.35, which must cover cost of contract, awarded to the Framingham Construction Co., South Framingham, Mass. Town of North Haven, about 4,- 950 lin. ft. of trap rock macadam road on the Mt. Carmel highway, to the A. D. Bridges' Sons Co., Hazardville, Conn., for approximately \$6,412.75.

Aurora, Ill.—To J. E. Salfisberg & Co., contract at \$1.74 for paving S. River St. with brick. Total cost, \$14,639.

Woodstock, Ill.—For construction of 13,800 sq. yds. concrete pavement, lowest bid was that of Logan & Glerty, Elgin, at \$20,691.

Newton, Kan.—New contract for pav- ing has been ordered by City Commission with A. Jalcks Construction Co. Con- tract covers the following: Plum St. from Broadway to Seventh St.; the alley east of Main from First St. north to point north of Third St.; Oak St. from First to Third and from Seventh to Eighth, and East Seventh St. from alley east of Main to Walnut.

Paducah, Ky.—Subject to approval of State Road Commissioner, the McCracken fiscal court has awarded contract for construction of Bradshaw road to Brad- shaw Bros., their bid of \$2,781.46 being lowest of four submitted to the court. The Bradshaw road, which is to be built with state aid, will be one mile long and extend from Lovelaceville road to Jackson St. The four bids were: H. L. Ross, \$2,795.10; Yancey & Johnson, \$2,- 801.40; Bradshaw Bros., \$2,781.46.

Boston, Mass.—Contract was awarded Aug. 28 for asphalt of Prince St., Jamaica Plain, which will cost \$11,584. Sewer will also be built there at cost of \$6,078. Granolithic sidewalks will also be built on Blue Hill Ave., from Washington St. to Grove Hall to Morton St., at cost of \$9,065.

Boston, Mass.—By Comr. Pub. Wks., to Chas. J. Jacobs Co., 166 Devonshire St., for asphalt pavement on Prince St., at \$11,580. Next 3 lowest bids: James Doherty, \$11,836; A. H. Archer, \$12,030; Martino De Matteo, \$12,042.

Belding, Mich.—To A. H. Prange, Grand Rapids, Mich., at \$39,196, for paving with Metropolitan wire cut lug block on 6-in. concrete foundation with cement curb and grout filler.

Joplin, Mo.—The Spooner Road Oiling Co. has been awarded contract for treating streets in five oiling districts with Tarvia E.

Joplin, Mo.—Contract for laying of concrete paving, on E. 7th St. from Main St. to the Frisco tracks was awarded to V. E. Koch at a meeting of the City Council Aug. 24. The bid made by Koch, which was \$8,206, was only one presented. Contracts for laying sidewalks on both sides of Woodson Ave. from High to McKee Sts. and the east side of McKee St. from Woodson to Buchanan were awarded to J. F. Frye, who was only bidder.

Kansas City, Mo.—By city, to A. W. Wooley, 2819 Belleville St., Kansas City, at \$4,027, for grading 39th St. from Jackson St. to Indiana Ave., and to Norton Bros., 3517 Main St., Kansas City, at \$11,895, for grading Woodland Ave. from 43d St. south to Swope Parkway.

Weston, Mo.—To Maley & Kelly, Kansas City, for paving Main St. with macadam at \$1.15 per sq. yd. for new work and 90 cts. per sq. yd. for surfacing. Terrence Riley is City Clerk.

Missoula, Mont.—For standard bitulithic paving in Special Improv. Dist. No. 36 to J. C. Maguire, Butte, at \$2.37 per sq. yd.; total \$13,399. S. Birch & Sons of Great Falls bid for the work \$2.45 per sq. yd.; total \$14,285. T. S. Hathaway is City Engr.

Lincoln, Neb.—For construction of 3-in. fibre brick block pavement to Burke Cochrane Co., Lincoln, Neb., at \$1.89 per sq. yd.

Newark, N. J.—To Newark Paving Co., at \$15,346, for paving on Belleville Ave. with granite block.

New Brunswick, N. J.—Bids were received last week for repairs to three sections of South Amboy-Keyport Rd., but no contracts for this work have been awarded. Freeholders on Aug. 30 gave to T. H. Riddle, of this city, contract for repairs to Commercial Ave., he being lowest bidder, with estimate of \$35,571.10. Mr. Riddle was low on proposals received for section one of South Amboy-Keyport Road, and Abraham Jelin, of this city, was low on bids on sections two and three, of same highway, but no award has been made. The Utility Construction Co., of this city, was low on the Rahway Ave. job, with bid of \$26,290.65. Abraham Jelin, of New Brunswick, was awarded contract, at figure of \$380, for repairs to Mill run culvert on Metuchen-Bonhamtown Road.

Binghamton, N. Y.—Board of Contract and Supply Aug. 30 awarded to firm of Fitch & Douglas, which is constructing the state pavement from city line at Pierce Creek bridge east on Conklin Ave., to beginning of the Conklin State Highway, contract for paving approaches and bridge over Lackawanna tracks, which crosses the road a mile and a half out of the city. Contract was awarded on the unit of prices, which State is paying firm for construction of other portions of the pavement. This includes following items: Excavation, 40 cts. per cu. yd.; 6-in. pipe for drainage system, 18 cts. per ft.; stone curb and header, \$1.10 per ft.; concrete curb, 40 cts. per ft.; metal reinforcements, 5 cts. per lb.; screen gravel, loose, 2 cts. per cu. yd.; foundation course, field or quarry stone, \$2 per cu. yd.; concrete foundation for pavement, \$3.90 per cu. yd.; brick pavement with pitch joints, \$1.35 per cu. yd.; brick pavement with concrete joints, \$1.35 per cu. yd.

Cohoes, N. Y.—For paving portion of Garner St. with vitrified brick, to Thos. F. Grattan Constr. Co., Cohoes, at \$1.53 per sq. yd.; total at \$21,199. Other bidders: P. W. Mulderry, Albany, \$21,708; Joseph Bellatte, Troy, \$21,987; Crammond Constr. Co., Albany, \$23,335.

Lockport, N. Y.—For constructing Shawnee County road in Lockport to C.

N. Stainthorpe & Co., 126 Main St., at \$20,830.

Rochester, N. Y.—By Board Boncontract and Supply, to Whitmore, Rauber & Vincinus, Rochester, for asphalt pavement on Marion St., at \$9,251, and Aberdeen St., at \$9,331, and to same firm for brick pavement on Cottage St., at \$13,361, and for asphalt pavement on Granger Pl., at \$7,057, and brick on Cottage St. at \$13,361.

Syracuse, N. Y.—Board of Contract and Supply awarded two paving contracts on Aug. 31. One went to Schenectady Construction Co., at \$9,271.40, for paving Westcott St. from Euclid Ave. to Jerome St. with natural asphalt and Medina stone curb, and other to Warner-Quinn Asphalt Co., at \$2,791.80 for paving Garfield Ave. from E. Colvin St. to Elk St. with petroleum asphalt.

Concord, N. C.—For paving W. Depot St. from Spring St. to depot and Church St. from East Corbin to East Depot by Bd. Aldermen to R. M. Hudson & Co., of Atlanta, at about \$40,000.

West Asheville, N. C.—By city, to Reed & Wells, Asheville, N. C., to construct 9,000 ft. sidewalks.

Eaton, O.—For consideration of \$6,236 Harry W. Curry, of this city, was awarded contract for paving West Main St., at regular meeting of city council. Street will have a 6-in. concrete base, 2½ ins. of crushed stone and tarvia wearing surface. The concrete calls for application of 2.2 gallons of tarvia to the sq. yd. Curry's bid was \$1.22 per sq. yd. for street work, which is estimated at 3,800 sq. yds.

Lisbon, O.—Trustees of Centre Township have opened sealed bids submitted on contract for grading and paving of Hephner Hollow road, out of Lisbon in southwesterly direction 2.69 miles, to line of Wayne Township. There were five bids submitted and contract awarded to William H. Hephner and William McLain, Lisbon contractors, on their bid of \$35,376, which was lowest. Trustees also awarded contract for grading of Hephner Hill, on the Hephner farm, two miles south of Lisbon. Morris & Richardson of Lisbon were given contract on their bid of \$1,496.40.

Newark, O.—Contracts have been let by department of public service for construction of sewer in Ninth St. and for paving of Hoover St. and Buena Vista St. Henderson Bros. were awarded contract for sewer work, which is a small job from Columbia St. to the foot of the hill south of Granville. Same firm also was awarded the contract for paving of Hoover St. from Fourth St. to Woods Ave. Lincoln block, a new paving block manufactured at Corning, will be used on this job. Heretofore, all paving block used here has been made in Columbus or vicinity. M. T. Keeley, a local contractor, was awarded contract for paving of Buena Vista St. Tarvia on a 4-in. concrete foundation will be used on this street. This will be the first time that this material for street paving has been used and the result of the experiment will be watched with interest. The contractor gave a satisfactory guarantee for five years.

Zanesville, O.—For paving with non-bituminous slag macadam, about 10 miles, on Adamsville Rd. to Avers & Kappes, of Zanesville, at \$127,099.

Harrisburg, Pa.—Cheaper paving for this city was presaged Aug. 30 when Highway Com. missioner Lynch opened bids for work on seven different streets. Comparison of bids follows: Central Construction—Cumberland, 14th to 15th, \$1.90 and \$1.75; Brown, 17th to 18th, \$1.68 and \$1.50; Atlas, Woodbine to Emerald, \$1.90 and \$1.75; Saul, Howard to Groninger, \$1.98 and \$1.83; Alderman Walter—Cumberland, 14th to 15th, \$1.68 to \$1.50; Brown, 17th to 18th, \$1.68 and \$1.50; Atlas, Woodbine to Emerald, \$1.68 and \$1.50; Second, Seneca to Schuylkill, \$1.68 and \$1.50; Zarker, 18th to 19th, \$1.68 and \$1.50; Clover alley, Howard to Groninger, \$1.68 and \$1.50. Walter was beaten by 2 cents a sq. yd. on bituminous concrete paving for streets in Bellevue Park, which is to be started this fall. On Commissioner Lynch's recommendation, contract was given Central Construction Co., at \$1.37 a sq. yd.

Philadelphia, Pa.—Edwin H. Vare submitted lowest bid for work of improving Passyunk Ave. from 23d St. to 28th, when proposals for work to cost approximately \$475,000 were opened Aug. 31 by Chief William H. Connell, of Bu-

reau of Highways. Vare was low bidder several weeks ago on contract for repairing Passyunk Ave. from South St. to 21st St., his bid being \$115,000.

Reading, Pa.—By Council paving contracts amounting to \$19,000 as follows: Bituminous bound macadam, on Spring St. to John E. Weidner, Reading, at 97 cts.; brick pavement, Orange St., Fehr & O'Rourke, Reading, at \$2.41; asphalt on portions of Walnut, Fifth, Elm, Fourth and Eighth Sts., to Hassam Constr. Co., Worcester, Mass., at \$1.54 per sq. yd.

Wilkesburg, Pa.—For regrading, curbing and paving Wood, Rebecca, Franklin and other streets and Grand Ave. to A. V. Purnell, 507 Jackson St., Allegheny, Northside, Pittsburgh, at \$38,890. Other bids on complete work: Geo. S. White & Co., Jenkins Arcade, Pittsburgh, \$41,618; Hall, Harry & Co., Sixth and McClure, Pittsburgh, \$43,129; Ridge Bros., Fourth Ave., Pittsburgh, \$43,330. Frease & Sperling are Boro. Engrs.

Huron, S. D.—For construction of sidewalks along west side of lots 11, 12 and 13, block 2, Pettigrew's addition, to N. J. Kass at 10½ cts. per sq. ft.

Dallas, Tex.—To Vibrolithic Co., contract for paving Fitzhugh Ave., at about \$21,000.

North Yakima, Wash.—Contract for grading 6¼ miles of county road in Selah Valley has been awarded to Thos. Dingle by county commissioners at \$12,702.64. To Cascade Construction Co. was given contract for hard surfacing 1¼ miles on Nobb Hill Blvd. for \$5,170.

SEWERAGE

Pomona, Cal.—Bids will be advertised for storm drains for Garey Ave.

Stratford, Conn.—At town meeting in Stratford it was voted to have selectmen and board of finance take steps towards appropriating funds with which to build sewer system in town.

Waterbury, Conn.—City Engineer Cairns has been authorized to call for bids for construction of sewers on Plank Rd., the bids to be received and opened at meeting Sept. 14.

Daytona, Fla.—Work on new Daytona sewerage system will probably commence at end of two weeks' time. Board of Public Works has instructed Bryan & Co., of Jacksonville, the contractors, to go ahead with whatever validating proceedings might be necessary and to make preparations to begin work in Daytona as soon as possible.

Eustis, Fla.—City will vote Oct. 5 on issuing \$20,000 bonds to construct 3 miles sanitary sewers and Imhoff tanks.

Helena, Ga.—City will vote Sept. 8 on issuing \$12,000 bonds to construct sewer system.

Alton, Ill.—Construction of East End trunk sewer is being planned.

Muscatine, Ia.—Resolution has been adopted ordering construction of combination storm water and sanitary sewer in sub-sewerage District No. 31 of Main Sewerage District No. 1, a combination storm water and sanitary sewer in Sub-sewerage District No. 5 of Main Sewerage District No. 3; a combination storm water and sanitary sewer in Sub-sewerage District No. 5 of Main Sewerage No. 2; a main trunk sewer on the West Branch of Papoose Creek from Quince St. easterly 500 ft.

Muscatine, Ia.—Bids are now being received by Central States Engineering Co. for construction of about 47 miles of tile drains, in Mercer County, Ill., across from Port Louisa, and inland about a mile and a half.

Pittsburg, Kan.—Construction of an 8-in. tile sewer lateral in Sewer Lateral District No. 31 has been ordered.

Lexington, Ky.—Ordinance providing for submission to voters of city proposition to incur bonded indebtedness of \$350,000 for extension of storm water and sanitary sewer system of city, and erection of sewage disposal plant, has been given its second reading and unanimously passed. Proposition will be voted upon at regular election November 2.

Lexington, Ky.—Election will be held for voting on \$350,000 bond issue for extending and improving storm water and sanitary sewerage system, and for installing sewage disposal plant.

Lexington, Ky.—Ordinance providing for submission to voters of Lexington at November election issue of \$350,000 in bonds to be used for extension and improvement of city's sanitary and storm water sewerage system, including installation of modern sewage disposal plant, has been given final approval by Board of City Commissioners. The bonds will

be 4½ per cent. bonds and will run for a period of 35 years from 1916, with provision that interest be payable semi-annually. It is provided that \$300,000 of the issue, or as much as will be deemed necessary, be expended for extension and improvement of sanitary sewerage system and the proposed sewage disposal plant, while remaining \$50,000 is to be devoted exclusively to construction of storm water sewers. It is specially provided that \$10,000 of bonds be retired every year.

Paducah, Ky.—Voters of Paducah will be asked at November election to vote for \$300,000 worth of bonds to be issued for 30 years at 4½ per cent. and payable at city depository for construction of No. 3 district trunk line sewer.

Paducah, Ky.—Ordinance providing for bond issue of \$300,000, bearing 4½ per cent. interest, was introduced before City Commissioners for purpose of constructing sewer No. 3, which it is proposed to begin next year. Ordinance will lie over 10 days before being given final passage. Term of bonds is 30 years. Amount of bond is \$100,000 more than had been expected, but Stanley Miller, the civil engineer who made estimate, claimed it would require \$300,000 to build the sewer. Bonds will be voted on in November.

Saginaw, Mich.—Resolution has been adopted for construction of lateral sewer in Storch St., Court St. to Adams St.

Duluth, Minn.—Petitions have been filed with City Clerk Borgen requesting Council to install sanitary sewers in Third alley, from 19th to 20th Aves. W.; in Eighth alley, from 23d to 24th Aves. W., and in Brook St., from Boundary Ave. to city limits of Proctor.

Eveleth, Minn.—See "Streets and Roads."

St. Joseph, Mo.—Ordinances have been passed for construction of sewers in districts Nos. 117 & 123.

Fanwood, N. J.—At September meeting of Common Council a committee on sewerage was appointed and given power to meet with Plainfield in discussion of sewer matters. As soon as sewer system of Plainfield, North Plainfield and Dunellen is completed Plainfield has agreed to allow Fanwood to connect with trunk lines.

Newark, N. J.—A report as to best means for draining Hollywood Heights section and approximate cost thereof was submitted by Engineer William H. Luster. Mr. Luster stated that best way in which to care for surface water would be by construction of storm sewer to run to brook in rear of Hillside Ave. and thence to the Elizabeth River. Cost for this improvement would be about \$4,000.

Passaic, N. J.—A resolution signed by all members of Council adopting sewer plans made by Borough Engineers Bowe and Wessells and authorizing them to have same approved by State Board of Health has been adopted. Another resolution, engaging Bowe and Wessells as engineers on sewer at 7½ per cent. of cost of construction was also adopted.

Plainfield, N. J.—Councilmanic Finance Committee has decided to issue bonds for \$145,000 for trunk sewer expenses.

Brooklyn, N. Y.—See "Streets and Roads."

Rochester, N. Y.—Bids will be received until 11 a. m., Sept. 8, for Graves St. tunnel sewer.

Schenectady, N. Y.—Resolution has been adopted approving plans and specifications presented by city engineer for building of trunk sewer from rectangular interceptor in Front St. to corner of Union Ave. and Union St., and secretary was authorized to advertise for bids to be opened at next meeting of board.

Marion, O.—Bids for construction of sanitary and storm-water sewer on Ballentine Ave., from Quarry St. to George St. sewer, were opened Aug. 26, at office of City Clerk E. E. Blazer. The bids submitted were as follows: Harry G. Kohbarger, \$3,558.80; Kohbarger & Hoyles, \$3,596.15; Thomas F. Hurley, \$3,717.39. Contract will be awarded by Board of Control later.

Miles, O.—Bids will be received until 2 p. m., Sept. 28, for purchase of \$9,800 in bonds for construction of sewer in district No. 4. Homer Thomas is City Auditor.

Urbana, O.—County Commissioners have just granted petition for largest ditch ever constructed in this county. Ditch is known as Blacksnake ditch and starts in Jackson Township. It will follow line of old ditch and will have eight laterals. Cost of new ditch is estimated at between \$10,000 and \$12,000

and 30-in. tile will be used at outlet. The county surveyor is expected to make report on this ditch by Oct. 7.

Marlow, Okla.—City will vote Sept. 16 on \$15,000 bonds for main sanitary sewer system. The Benham Engineering Co., Colcord Building, Oklahoma City, will prepare surveys, plans and specifications and supervise construction.

Allentown, Pa.—City Engineer Weirbach has been authorized to secure such assistance as may be necessary to complete comparative sewerage investigations and estimates for presentation to Council.

Ardmore, Pa.—A 4-foot brick sewer will be constructed on Elm and Walnut Sts. in South Ardmore.

Connellsville, Pa.—A resolution authorizing construction of 1,100 ft. of sewer on Blackstone Ave., West Side, and 1,400 ft. on South Pittsburg St., has been passed.

Lebanon, Pa.—City council voted at special session, Aug. 30., to award contract for construction of second unit disposal plant to Pitt Construction Co., Pittsburgh, whose bid was nearly \$6,000 lower than the next closest bidder, Bennett & Randall, of this city. The Pitt Co.'s bid is \$45,311.40. Bennett & Randall, next lowest bidder, had a bid of \$51,321.60 with the same item. The bids as tabulated by engineer's force follow: Pitt Construction Co., Items 1 to 43, \$40,911.90; including additional excavation and masonry at Imhoff Tank, 1 to 45, \$44,711.40; including Diesel or Oil Engine, 1 to 46, \$45,311.40; excluding additional excavation and masonry, but including Diesel Engine, \$41,511.90, date of completion, May 1, 1916. Bennett & Randall, Items 1 to 43, \$46,623.10; including additional excavation and masonry at Imhoff Tank, 1 to 45, \$49,321.60; including Diesel or oil engine, 1 to 46, \$51,321.60; excluding additional excavation and masonry, but including Diesel engine, \$48,623.10; July 1, 1916. Whiting Turner Construction Co., Items 1 to 43, \$46,899.32; including additional excavation and masonry at Imhoff Tank, 1 to 45, \$51,470.12; including Diesel or oil engine, 1 to 46, \$53,170.12; excluding additional excavation and masonry, but including Diesel engine, \$48,599.32; Jan. 1, 1916. Suburban Engineering Co., Items 1 to 43, \$49,823.25; including additional excavation and masonry at Imhoff Tank, 1 to 45, \$53,860; including Diesel or oil engine, 1 to 46, \$58,684.75; excluding additional excavation and masonry, but including Diesel engine, \$55,022.25; Sept. 1, 1916. Francis J. Boas, Items 1 to 43, \$49,926.70; including additional excavation and masonry at Imhoff Tank, 1 to 45, \$56,573.25; including Diesel engine, 1 to 46, \$66,573.25; excluding additional excavation and masonry, but including Diesel engine, \$59,926.70; June 15, 1916. Heyman & Goodman, Items 1 to 43, \$54,668.90; including additional excavation and masonry at Imhoff Tank, 1 to 45, \$61,278.90; including Diesel or oil engine, 1 to 46, \$66,078.90; excluding additional excavation and masonry, but including Diesel engine, \$59,468.90; date of completion, Feb. 1, 1916.

Columbia, S. C.—Election will be held to vote on issuing \$300,000 bonds for sewer construction. L. A. Griffith is Mayor.

Aberdeen, S. D.—That Aberdeen must spend over \$300,000 in order to secure efficient sewer system was statement made by W. S. Shields, one of two expert engineers who are here from Chicago to investigate Aberdeen's system of sewers. He stated that present system of sewers is totally inadequate for city of 14,000 population such as Aberdeen.

San Antonio, Tex.—See "Streets and Roads."

CONTRACTS AWARDED.

Hockanum, Conn.—To A. D'Ambrosio, Front St., Hartford, Conn., contract of \$8,060 for about 9,300 ft. of 8-in., 10-in., 12-in. sewer.

Quincy, Ill.—By Board of Local Improvement, for constructing sanitary sewer, including 4,406 lin. ft. 10-in. pipe, 1,803 lin. ft. 12-in., 3,972 lin. ft. 15-in. and 5,225 ft. 15-in. pipe in northeast section of city, awarded Aug. 28 to Henry Rees, Quincy, at \$14,549. Next 3 lowest bids: Hummert & Menke, \$15,638; Jos. Eiff & Son, \$16,325; Jacob Althause, St. Louis, \$16,664.

Pera, Ind.—James Burke has been awarded contracts for two lateral sewers, one between 6th and 7th Sts. from Jefferson to Holman, and one between

Franklin and Warren Sts. from the Sullivan Lane to Wabash St., and entering into Wabash St. sewer.

Duluth, Minn.—By city to Pastoret Constr. Co. for constructing 37th Ave. West trunk sewer at \$18,124. Work includes 935 lin. ft. c. i. pipe 16 to 36 in.; 1,630 lin. ft. concrete sewer, 32 to 34 in.; 4,167 lin. ft. vitr. pipe, 10 to 24 in. and 26 manholes.

Sandstone, Minn.—To Chas. Eklund & Co., 14 N. 58th Ave., West Duluth, Minn., contract, at \$8,298, for sewer system for this city. Work includes 6,140 cu. yds. of excavation, 150 cu. yds. of rock excavation and 2,708 ft. 10-in., 3,442 ft. 8-in. and 2,835 ft. 6-in. sewer.

Joplin, Mo.—V. E. Koch was awarded contract Aug. 24 for construction of storm sewer on E. 7th St., although he was not low bidder. Bids on this job were: E. O. Moats, \$1,950; Henry Kost, \$1,835; Koch, \$1,874.

Newark, N. J.—The Passaic Valley Sewerage Commission opened bids Aug. 31 for erection of superstructure of pumping plant in Doremus Ave., on Newark Meadows. The lowest bid was submitted by W. G. Sharwell & Co., of Newark. It was \$109,638. Fourteen bids were received in all. The second lowest was one of \$114,289, submitted by the Essex Construction Co., and the third lowest was \$122,330, submitted by A. L. Guidone & Sons, of New York. The highest bid was \$149,997, submitted by J. H. Steele & Son, of Paterson.

Rahway, N. J.—Matthew Wade, of Elizabeth, was successful in bidding on two contracts awarded at meeting of common council Aug. 31. The contract to construct 400 ft. of storm and sanitary sewer in Totten St. was awarded to him for \$361, with reservation to pay \$5 per cu. ft. for any rock excavation necessary in trench.

Canton, O.—To Newton E. Wise, city, at \$32,297, contract to construct Shivers Run Sewer. Work includes 42-in. National Fire Proofing Co. segment block for distance of 1,085 ft., 54-in. Metropolitan brick sewer for distance of 1,230 ft. and 60-in. Metropolitan brick sewer for distance of 1,110 ft.

Chardon, O.—To Kent Construction Co., Kent, O., contract at \$12,346 for construction of sewage disposal plant for this city. Work includes construction of two 2-story sedimentation tanks, sludge beds, approximately 1-10 acre of contact filters and 23-100 acre of intermittent sand filters.

Newark, O.—See Contracts Awarded, "Streets & Roads."

Philadelphia, Pa.—Contracts were signed Aug. 31 by Mayor for construction of main sewer in Adams Ave. and Ramona St. to the Northeast Blvd. and Summerdale Ave., to Robert Higgins, for \$27,000; and for extension to the Gunner's Run relief sewer in Indiana avenue, from 9th to 12th St., to the Frank Marks Construction Co., for \$65,000.

Woonsocket, R. I.—By Board Sewer Commissioners ofr constructing about 4,400 ft. 8-in. and about 500 ft. 15-in. sanitary sewers and appurtenances to Eastern Constr. Co., Woonsocket, Frank H. Mills is City Engr.

Watertown, S. D.—To Offerman Construction Co., South Omaha, Neb., for construction of new sewer system at \$79,289.

Dallas, Tex.—City Attorney Charles F. O'Donnell has prepared contracts between city and Bailey, Reeder & Co., of Mobile, Ala., for construction of units Nos. 5 and 7 of municipal sewage disposal plant and Roach-Manigan Co. for construction of unit No. 6. They will be signed and approved at once and work will start within a short time. Contracts involve expenditure aggregating \$384,000 and work will complete disposal plant.

Dallas, Tex.—Contracts have been awarded by city, J. B. Winslett, city secretary, for construction of sewerage work as follows: Contract No. 5, north interceptor, concrete portion, to Bailey Reeder Co., Mobile, Ala., \$80,708; Contract No. 7, disposal work, including the 36-in. force main between Station 5 and the disposal works, to Bailey Reeder Co., \$204,976, and Contract No. 6, pumping station and 36-in. force main and Oak Cliff trunk line across Trinity River to Roach, Manigan Paving Co., Dallas, \$98,434.

Richmond, Va.—Lowest bid for construction of sewers in Scott's Addition was reported by City Engineer Charles E. Bolling to Administrative Board to be \$47,256.98. The board did not award con-

tract because of insufficient funds for work, but it advised that principal streets in section have sewers installed and less important streets be taken care of in next budget. Commissioner Folkes offered resolution, which was adopted, that necessary main line sewers in Scott's Addition be named by City Engineer, and that he make report of any other recommendations necessary. The paymaster, Mr. Shepherd, was also instructed to report to board amount of money available in bond issue for taking care of sewers in annexed territory.

Madison, Wis.—By council, for sewer work as follows: To Weber & Gay, for new force main for sewage system, at \$28,865; to J. W. Mitchell, for pumping station in Greenbush District, at \$12,100, and to John P. Icke, to construct intercepting sewer on Murray St., at \$24,700, and to J. F. Icke, to furnish and place crushed stone or filter beds at the new sewage disposal plant. E. E. Parker is City Engr.

WATER SUPPLY

Miami, Ark.—The Miami town council has formally purchased the Joe Prochaska waterworks system for "one dollar and other valuable consideration." Problem of where to secure water with which to supply Prochaska system was referred to public utilities committee of town council, which committee was given power to act.

Sacramento, Cal.—Residents of 8th Ave. have petitioned City Commission to lay water mains and furnish water to blocks between 36th St. and East Ave. Petitioners say Oak Park Water Co. has refused to furnish them water.

San Rafael, Cal.—Marin County is to have its own water system. The \$3,000,000 Marin municipal water district bond election carried by four to one. The county plans to purchase the North Coast Water Co., which serves water to Mill Valley, Belvedere and Tiburon, and the Marin Water & Power Co., which supplies the towns of San Rafael, San Anselmo, Fairfax, Larkspur, Corte Madera and San Quentin. The passage of bonds also provides for purchase of nearly all of the north and west slopes and a portion of the south slope of Mount Tamalpais. Among other things, it means that mountain will be preserved as public park.

Bacaton, Ga.—City has voted \$12,000 in bonds, \$5,500 being for construction water works and electric lighting plant.

Helena, Ga.—City will vote Sept. 8 on issuing \$8,000 bonds to construct water works.

Whitecastle, La.—City has voted \$25,000 in bonds to construct combined water works and electric lighting system. Xavier A. Kramer is engineer, Magnolia, Miss.

Lowell, Mass.—Bids for steam piping of turbine engine at the boulevard pumping station, which is to be connected with filtration plant, were opened Aug. 30. The contract will be awarded at next meeting of municipal council. Bids were opened at office of water department and were as follows: Harry S. Drury, \$635; Welch Bros., \$625; M. T. Shaw Co., \$655; Farrell & Conaton, \$662; Barker Mfg. Co., \$598, and Carroll Bros., \$610. As can be seen the Barker Mfg. Co. is the lowest bidder.

St. Joseph, Mo.—Ordinance has been passed providing for issue and sale of improvement bonds to the amount of \$50,000 of the city of St. Joseph, Mo., for purpose of building and constructing a flood water reservoir to connect with upper terminus of public sewer located near 13th and Faraon Sts., in said city.

St. Joseph, Mo.—Ordinance has been passed ordering the St. Joseph Water Co. to lay mains and install hydrants on 19th St.

Atlantic City, N. J.—Immediate construction of 20-in. high pressure main for fire protection under Boardwalk from Massachusetts to Missouri Ave., a distance of 16 blocks, was ordered at special session of City Commission on Aug. 24. The proposed main, which will use fresh water, will have large arteries extending from the beach to Pacific Ave. on Virginia, South Carolina, Kentucky and Arkansas Aves.

New Brunswick, N. J.—Responding to public sentiment city commission has voted unanimously in favor of making

extensive improvements to city water plant, embracing additional water supply, filtration, extra pressure and duplicate pumping machinery.

Wilberforce, O.—Bids will be received until 10 a. m., Oct. 1st, by Board of Trustees, Combined Normal & Industrial Department, at Wilberforce University, for furnishing materials for and for constructing improvements to water supply system. Approx. quantities as follows: Item 1, 80,000 gallon steel tank and tower; item 2, 8-in. well complete, 60 ft. deep; item 3, 2 steam pumps; item 4, one hot water storage heater; item 5, water softening plant, plumbing; steam fitting, water mains, miscellaneous, etc. W. A. Galloway is President Bd. of Trustees.

Cushing, Okla.—City will call election soon to vote bonds in amount of \$30,000 for system of main intercepting sanitary sewers. Surveys and estimates have been prepared by city's engineers, The Benham Engineering Co., of Oklahoma City, will prepare its final plans, specifications and supervise the construction work.

Milwaukee, Ore.—Milwaukee voters have authorized a \$25,000 bond issue to complete a municipal Bull Run water system, on which \$20,000 has already been spent, by vote of more than four to one, at special election.

Coatesville, Pa.—Construction of dam & installation of new water supply are planned.

Reynoldsville, Pa.—Reynoldsville voters have approved the \$100,000 bond issue which is to be devoted to purchasing water plant.

Philadelphia, Pa.—Within a few days Chief Carleton E. Davis, of the bureau of water, will advertise for proposals for installing three centrifugal pumps in the Shawmont Pumping Station. Each pump will have a capacity of 10,000,000 a day. It is also planned to build a coal storage bunker with a capacity of 3,500 tons at the Queen Lane Pumping Station.

Lenoir City, Tenn.—City will shortly vote on issuing \$10,000 bonds to complete water system.

Galveston, Tex.—Tentative plans have been agreed upon to take initial step toward construction of another permanent water main across the bay.

Richmond, Va.—Scarcity of water at fires with its resultant dangers will be minimized if council will vote appropriation of \$108,361.44, recommended by Superintendent E. E. Davis, of water department. He plans to extend and enlarge water mains in districts in which complaint is heard that flow of water is inadequate.

Everett, Wash.—By 4,000 to 1,200, Everett voted Aug. 24 to acquire water system of private company by purchase or condemnation, bonding city for \$1,100,000 to pay. City also voted to secure water right in Sultan River basin and build pipe line. An issue of \$600,000 of general bonds was voted for Sultan extension and to investigate power possibilities of river.

CONTRACTS AWARDED.

St. Maries, Ida.—For constructing water works, including concrete and earth dam, etc., awarded Aug. 23 to W. L. Geist, St. Maries, Ida., at \$29,110. Next three lowest bids: Security Bridge Co., Minneapolis, Minn., \$29,085; Carlson Lindhall & Anderson, Spokane, Wash., \$29,394; J. C. Broad, Spokane, Wash., \$30,065. Charles R. Schulte is city clerk.

Gloucester City, N. J.—For furnishing and installing boilers, stacks, tank serving pumps, air compressors, together with deep well, air lifts, etc., to L. T. Edwards & Co., 18 S. Seventh St., Philadelphia, Pa., at \$22,141. Other bidders as follows: Redpath & Potter Co., \$22,846; Standard Supply & Equipment Co., \$22,952; Jos. L. Smeigard & Co., \$23,865; Machold & Riddell, \$24,326; John P. Smith, \$24,990. J. F. Lenny is City Clk.

Centerville Station, N. Y.—For water works: To Abner Harper & Co., Inc., Newburgh, for laying pipe and setting hydrants, at \$8,278, and R. D. Wood & Co., of Philadelphia, Pa., for pipe, hydrants and specials, at \$10,833.

Manhasset, L. I., N. Y.—The Carle Park Water Commissioners have awarded contract to install water system in that district to W. G. Fritz Co. of Newark, N. J., for \$24,422. Voters of district some time ago voted to spend \$30,000 for system. Bids will be advertised this week for sale of bonds.

Schenectady, N. Y.—Two bids have been submitted for alterations to piping and other things incident to installation of new pumps at Rotterdam pumping station. Winner proved to be H. K. Corbin of New York, whose extension price on whole job was \$24,690. The other bid was from Brown & Loew, who offered \$27,870. Contract was awarded to Corbin.

Wellsville, N. Y.—To J. H. Havens, Olean, at \$75,616, contract for waterworks improvements to consist of 6 miles of pipe line, storage reservoir, filters and control house, gate house, intake dam, etc. Chas. C. Hopkins is consulting engineer, Rochester.

Wellsville, N. Y.—Following are lowest bids received Aug. 25 for water works improvements: Valves, valve boxes and hydrants awarded to R. D. Wood & Co., Philadelphia, Pa., \$2,395. Storage reservoir, filter, control house, gate house and piping: J. H. Havens, Olean, \$36,028; Suburban Eng. Co., New York, \$39,955; Knight & Soger, Wellsville, \$40,982. Piping system, force mains, intake dams, etc., awarded to J. H. Havens, Olean, \$39,588; Suburban Eng. Co., New York, \$43,419; John J. Kuhn, Greensburg, Pa., \$49,500.

Caddo, Okla.—By city, at about \$20,000, to F. W. Keeney, Oklahoma City, to construct pumping station and filters, including two 8x10 triplex pumps, two 4-in. centrifugal pumps, two 50 h. p. oil engines, gravity filter of 250,000 gals. per day capacity, power-house, settling basin and clear water well. J. E. Davis is city engineer.

Hatfield, Pa.—By Town Council, to Pugh & Hubbard Co., Philadelphia, for about two miles of 4, 6 and 8-in. c-i mains, etc., at \$8,995.

LIGHTING AND POWER

Fairhope, Ala.—Proposition for installation of electric lighting plant is being considered. Committee has been appointed to canvass citizens to ascertain probable number of consumers.

Troy, Ala.—Electric light commissioners expect to purchase within a few weeks 50 250-watt incandescent lamps for municipal electric light system. E. T. Freeman is superintendent.

Little Rock, Ark.—City is said to be contemplating purchase of 200 new street lamps, at cost of about \$20,000.

Stockton, Cal.—Petitions are being circulated among The Oaks district for installation of electroliters throughout entire section, with understanding that city supply electricity to maintain lamps.

Stockton, Cal.—Authorized returns of recent elections held in Manteca, Ripon and Escalon for purpose of having electric lights installed upon various streets in these towns, have been during session of Board of Supervisors.

Emmett, Idaho.—City Council will change lighting system here from arc lamps to incandescent lamps of from 60 c.p. to 100 c.p. each. City plans to place lamp at nearly every street intersection in city limits, and to install lamps in alleys in business district.

Springfield, Ill.—Ornamental lighting systems in Washington St., between 1st and 10th Sts., and in Monroe St., between Spring and 10th Sts., are assured, as result of meeting of board of local improvements when action was taken favorable to installation of lights.

Breda, Ia.—Proposal to issue bonds for installation of electric lighting system in Breda has been carried.

Baltimore, Md.—Plans for municipal lighting plant to be operated by water power from Jones' Falls will probably be submitted to Board of Estimates shortly by Mayor Preston. It is understood that Ezra B. Whitman, one of city's consulting engineers, has made report to Mayor on proposition.

St. Joseph, Mo.—Ordinance has been introduced allowing \$5,000 for white way lights on Noyes Blvd.

Campbellton, N. B.—Town may purchase some lightning arresters, transformers and meters for the municipal electric-lighting system. H. G. V. Farar is manager.

Delaware, O.—Citizens of village of Ostrander are to have advantages of electric lighting system, to be furnished by plant at new garage recently completed by Mr. J. C. Maugans. Building is up to date in every respect and is equipped with full assortment of garage tools and electrical apparatus.

Massillon, O.—Plans for Massillon's new lighting system, which are being furnished free of charge to city by Massillon Electric & Gas Co., have been finished, and H. Whitford Jones, Cleveland electrical engineer, secured as assistant by Ward Harrison, also of Cleveland, who was placed in charge of drawing up the plans by the local company, is explaining them to councilmen. Plans are complete with exception of lighting of Oak Knoll Park. Mr. Jones said that plans for improving park had not been made and until he knew what was to be done with it he could not go ahead. A complete set of specifications accompanying the drawings. Plans provide for installation of 1121 lights in the city. A "white way" stretching from High St. to the Tuscarawas River bridge on Main St., and from North to Penn Sts., on Erie St., and from North to Tremont St., on Mill St., has been provided for. This section, it is provided, would be lighted by ornamental standards, each standard bearing two lights. Standards are so constructed that steel trolley poles may be affixed to them, thus doing away with all wooden poles along "white way" district. Two hundred and two ornamental standards have been provided for. This makes 404 lights on "white way." In residence district light will be furnished by lights of 100 and 250 candlepower. They can either be suspended from brackets or placed in center of street. This will be for council to decide. There are 183 lights of 250 candlepower, and 534 lights of 100 candlepower.

Baker, Ore.—According to tentative report being prepared by W. C. Ross, engineer in charge of municipal lighting plant, cost of installing cluster lights in business section of Baker will amount to \$4,300. Section included is on Main St. from Auburn to Church. First St. from Auburn to Center and Center St. from Main to Second. On Main St. three poles to block on either side of the street would be installed, while in rest of district poles would be placed at end of each block. Plan on which estimate is based is three bulb cluster system, and according to figures compiled by Mr. Ross, 54 iron standards would be needed. These would be 12 feet in height and would cost \$40 each. No estimate has been given on cement standards which are said to be cheaper.

Milwaukee, Wis.—Because there is no prospect of an agreement being reached by city and street railway company over installation of electric lights in outlying districts, committee on streets and alleys will recommend to city council that Heffernan resolution be adopted, directing that equipment be purchased by city. About 100 additional lights are needed.

CONTRACTS AWARDED.

South Pasadena, Cal.—City trustees of South Pasadena have signed contract with Pacific Light & Power Co., which made winning bid for furnishing street lighting power. Contract runs for period of two years. It is believed that this new contract is to be a money saver and that city lighting will cost 50 per cent less than formerly.

Dallas, Tex.—County Commissioners' Court has voted to award contract to Murray Iron Works Co. for additional 200 kilowatt machine for county power house in Criminal Courts Building. Price is \$12,000. Award was made on understanding that contract is to be executed by which company installs machinery and does not receive pay for it until it is installed and meets guarantee that it will show saving of 15 per cent. more than guaranteed operation of another machine offered by rival bidder at \$10,900. Enlarged plant will supply light and power for old courthouse and also lights for proposed new Commerce St. bridge.

FIRE EQUIPMENT

Chico, Cal.—Board of Fire Underwriters, through its secretary, W. S. Duval, in response to letter from Trustee S. A. Reynolds of this city, has recommended general improvement in local fire department if insurance rates in this city are to be lowered. Among other recommendations are purchase of heavier steamer for the Chico fire department, the betterment and modernization of fire hydrant system with installment of cisterns, employment of fire warden and installation of paid or partly paid fire department.

Sacramento, Cal.—One of improvements Commissioner Simmons says he desires to make in fire department in

suburbs is providing of additional combined truck and chemical engine. If this can be done without causing increase in tax rate, Simmons says he will make provision for it in budget. He estimates cost at \$5,000.

Glendora, Cal.—K. M. Suydam, city clerk, will receive bids up to Sept. 7 for furnishing 1,000 ft. 2½-in. fire hose.

Aurora, Ill.—City council is considering installation of a new police and fire-alarm system to cost about \$25,642. Plans for system have been prepared by City Electrician W. E. Barclay.

Freeport, Ill.—A new alarm system may be installed shortly.

Richmond, Ind.—Purchase of motor combination wagon, and 3 motor chassis is being considered.

Fall River, Mass.—Bids may be called for within two weeks for motorization of fire department. There is \$85,000 available for this purpose. William C. Davol is chief.

Sault Ste Marie, Mich.—Fire Chief Armour Taylor has asked Common Council to consider purchase of about 2,400 ft. of new hose to thoroughly equip department for fighting a bad fire.

St. Joseph, Mo.—Ordinance has been passed providing for issue and sale of improvement bonds to amount of \$86,000 of City of St. Joseph, Mo., for purpose of improving and repairing fire houses and purchasing motor equipment for fire houses in said city.

St. Joseph, Mo.—Ordinance has been introduced ordering transfer of \$2,500 from fire expense department to purchase new hose.

Atlantic City, N. J.—Commissioners Bartlett and Thompson have been directed to go to Boston, Chicago, New York and Cincinnati as quickly as possible in order to find out by actual experiment best type of fire engines to purchase for Atlantic City Fire Department; and whether to get steam fire engines or fire engines where gas engines pump the water.

Bridgeport, N. J.—Appropriation of \$3,500 has been made for a motor-driven combination chemical hose truck.

Linden, N. J.—That within few months Linden township will be given more adequate fire protection is now practically assured if present plans of township committee materialize satisfactorily. According to present arrangements, volunteer fire department will be organized, a fire house will be built, apparatus will be purchased and modern fire alarm system will be installed. This addition to township will cost over \$10,000, but will fill a long-felt need.

Babylon, N. Y.—Funds are being raised by the Phoenix Hose Co. for purchase of motor combination chemical and hose wagon.

Newburgh, N. Y.—Fire committee of council recommend motorization of department, and calling of special election to vote on bond issue of \$18,500.

Waterloo, N. Y.—Petitions are being circulated asking for installation of alarm system. It is said that a piece of chemical apparatus is also required.

Greensboro, N. C.—F. N. Taylor, chief of Greensboro fire department, and E. E. Bain, George Shaw and J. L. Thacker, members of department, have appeared before City Commissioners in regular session and asked that motor-propelled, combination fire truck be purchased for Eagle Hose company.

Hubbard, O.—Question of purchasing motor combination chemical and hose wagon is being considered.

Erie, Pa.—Underwriters have recommended purchase of motor apparatus.

Central Falls, R. I.—Purchase of motor combination chemical and hose wagon is being considered by council. W. J. Lees is chief.

Wheeling, W. Va.—The Edgewood Volunteer Fire Co. has made arrangements to purchase fire truck for town. Committee consisting of T. J. Watkins, L. W. Wilson, J. M. Hogl and Robert Emmerth was appointed to look after best prices that can be secured on various fire trucks.

Maiden Rock, Wis.—Installation of alarm system is being discussed.

CONTRACTS AWARDED.

Sault Ste Marie, Mich.—Council has decided to accept bid of Seagrave company of Columbus, Ohio, for new hose wagon, their bid being \$825. Mayor and recorder were instructed to enter into contract with the company.

Passaic, N. J.—Fire Committee of Township Committee has opened bids for fire hose. There were seven bidders. Contract was awarded to the Manhattan Rubber Co., of Passaic, being low-

est bidder, at 45 cts. per ft. for single jacket hose.

Passaic, N. J.—To Jas. Boyd & Bro., Inc., Philadelphia, Pa., contract for purchase of chassis for new combination fire truck.

BRIDGES

Leavenworth, Kan.—At meeting of county commissioner board has voted to advertise for bids on 26 of the bridges of Leavenworth County, which have been washed out by heavy rains of spring and summer. Bridges to be advertised as those selected by the board and County Engineer W. V. Thomas as the most important ones. They constitute all of Class No. 1.

Holyoke, Mass.—Construction of concrete bridge over Boston & Maine railroad tracks at Dwight St. is being considered.

Elizabeth, N. J.—A serial bridge bond issue, amounting to \$37,000, was announced Sept. 2 by County Collector Nathan R. Leavitt. Funds are to cover cost of building and repairing bridges, principal necessity coming as consequence of freshets of Aug. 4.

Trenton, N. J.—County Engineer has been instructed to draw plans and specifications for widening of Brewer's Hill bridge. Bids for the work will be advertised.

Rotterdam, N. Y.—Town Board of Rotterdam has voted to construct new bridge of reinforced concrete over Sandsea Kill at Pettersonville, to replace bridge washed away during storm. New bridge will be 10 feet longer than old one, having length of 70 ft., and cost of construction will be \$2,400.

New Hanover, N. C.—Construction of a free bridge or a free ferry across Cape Fear River between Wilmington and Brunswick County is being urged by Board of County Commissioners.

Columbus, O.—Construction of bridge to cost \$75,000 is being considered from east side of Union Station to 4th St. viaduct.

Hamilton, O.—County commissioners have approved plans for bridge to be erected near Symmes Corner prepared by state highway department. Since bridge is on state aid road state department prepares plans for improvement and pays one-half of cost. Bridge will be 20 ft. wide, paved with brick, and will cost \$1,695.

Hamilton, O.—County Engineer Hammerle is in Columbus conferring with Commissioner Clinton Cowen of State Highway Department concerning replacing a bridge across canal at Exello.

Niles, O.—County Surveyor has been directed by County Commissioners to have surveys made and specifications drawn up for improvements to Federal St. bridge across Mosquito Creek in Niles. It was learned that commissioners intend to have roadway on bridge paved with asphalt block. A sidewalk also is to be provided.

Eugene, Ore.—A. L. Geddes, county surveyor of Linn, is going ahead with plans for erection of Lane-Linn bridge over the Willamette river at Harrisburg.

Ebensburg, Pa.—Bids were opened but contract was not awarded for construction of two new bridges in county on Aug. 31. If bidders comply with the terms contract will go to lowest bidder. Bids submitted were as follows: Bridge at Lovett—J. L. Dunn, \$1,478.07; J. L. Elder, \$1,980; Portage Construction Co., \$1,189; P. E. McGovern, \$1,846.83; James & Fulton, \$2,525; Fred Zipf, \$3,275. Bridge at Bradley Junction—J. L. Elder \$1,340; Charles Schenkemeyer & Sons, \$2,543; Portage Construction Co., \$1,139; John Dandres & Co., \$1,678; P. E. McGovern, \$1,575.67; James & Fulton, \$1,775; Fred Zipf, \$2,075; A. H. Hess, \$1,400. The lowest bidder on the Lovett bridge is J. L. Dunn. The lowest bidder on the Bradley bridge is the Portage Construction Co.

Llano, Tex.—Llano County has voted bonds to construct bridges; will issue \$24,000 for construction of three low-water concrete bridges and \$10,000 for one-half cost of bridge to be built across Colorado River jointly by Llano and Burnet Counties. Louis H. Bruhl is County Judge.

CONTRACTS AWARDED.

De Vail's Bluff, Ark.—By Prairie County Road Dist. No. 1 to M. Kelly, Little Rock, Ark., to construct 4 bridges.

Clearwater, Fla.—By Pinellas County Commissioners to Edwards Construction Co., Tampa, Fla., for several bridges in connection with road construction let to same firm.

Sacramento, Cal.—At meeting of advisory board of State Engineering Department and Highway Commission, F. H. Green, of Eureka, was awarded contract for building proposed bridge over Sacramento River at Dunsmuir. Structure will be over 500 ft. long and will cost \$22,600. This ends long campaign Dunsmuir people have waged for bridge across the stream.

Pittsburg, Kan.—A new avenue leading into Pittsburg will be opened up this fall or early in winter, when new bridge is completed over Cow Creek on Quincy Ave. road west of the city. County Board has let the contract for structure and contract calls for its completion by Dec. 1. Contract for structure, which will be of girder construction with concrete floor was let to Joplin Concrete Steel Construction Co.

Schlater, Miss.—For constructing iron bridge across McNutt Lake awarded by County Board Supervisors to W. T. Young Bridge Co., Nashville, at \$11,000.

Fremont, Neb.—The Standard Bridge Co. of Omaha was awarded, Aug. 25, contract for erection of all bridges in county for coming year.

Trenton, N. J.—Whittaker & Diehl were awarded contract for construction of concrete bridge over Sanhican Creek at Willow St., by board of freeholders, Aug. 26. Their bid of \$8,176 was lowest received. New structures will be main entrance to Mahlon Stacy Park, in rear of state house. Other bidders and their proposals were: F. W. Schwiers, Jr., Co., \$8,300; Foster Construction Co., \$8,873; Reese-Taylor Co., \$9,018; Ginder Construction Co., \$9,670.35; Antonio Celenino, \$10,619.50; James H. Monday for the American Paving & Construction Co., \$11,475; G. B. Henrie & Son, \$11,500, and Charles T. Eastburn, \$11,750.

Dickinson, N. D.—The National Park transcontinental highway has let contract to Illinois Steel Bridge Co. for \$17,000 for construction of road bridge over Little Missouri at Medora, work to be completed Dec. 1.

Delaware, O.—The Delaware Bridge Co. was successful bidder for iron construction work on new bridge over Olen-tangy river at Winter St., their bid of \$2.75 per hundred pounds being at least 12 cts. under next lowest bidder. Contract for the sub-structure was awarded to Fitz-Rumer-Cooke-Grant Co., of Columbus at price of \$7,223.90. The concrete block floor will be constructed by Elkhart Bridge Co., of Elkhart, Ind. Their bid was: Cretone block, \$1.75 per sq. yd., and Cresote plank, \$47 per thousand feet. It is now estimated that bridge will be put in at cost of not more than \$29,370, fully \$5,000 less than was previously estimated. All told sixteen bids were submitted, eleven of which were on steel construction, and four on the sub-structure. One bid on concrete structure was submitted by Illinois Steel Co., at price of \$35,000.

Tulsa, Okla.—The Missouri Valley Bridge & Iron Co., of Leavenworth, Kan., through its agent, L. W. Forsgard, secured contract to construct bridge across Arkansas River between Tulsa and the western bank of river at meeting of County Board of Commissioners Aug. 26. The contract was awarded following announcement that successful bidder had agreed to construct the bridge for \$157,986, about \$7,000 less than any other bidder in the field.

Doylestown, Pa.—Bids have been opened by Commissioners for erection of concrete bridges over Trout Run, on Pebble Hill Rd., in Doylestown township and over Fall Creek, on road from Upper Black Eddy to Revere, in Bridgeton township. Following bids were submitted: Trout Run—J. T. Cyphers, \$1,306; Paul D. Kauffman, \$1,650; Sigafos & Poore, \$1,187; David Sutton, \$1,357; S. J. Clark, \$1,175. Fall Creek—Sigafos & Poore, \$1,380; David Sutton, \$1,317; S. J. Clark, \$1,235. Both contracts were awarded to S. J. Clark, of Morrisville.

Lebanon, Pa.—Frick & Sons, of Guilford St., this city, were successful bidders for work to construct three concrete bridges and iron girder bridge in this city and at special meeting of city council Aug. 30 received the contract. The Frick bid totaled \$4,725.58 and he has set his time of completion at 90 days.

Philadelphia, Pa.—Mayor Blankenburg approved Aug. 31 contracts for two new city bridges that will open up new thoroughfare in the 35th Ward and remove grade crossing on the line of Whitby Ave., over the four tracks of the Philadelphia and Baltimore Central Railway. The 35th Ward bridge will be three-arch concrete structure, 80 feet wide, over the Pennypack Creek, on the line of Holma-

Ave. The McNichl Paving & Construction Company was awarded contract for \$72,000. The contract for the Whitby Ave. bridge, which is to be of steel construction, with concrete abutments and a width of 80 feet, was awarded to Francis J. Boas for \$40,000.

Providence, R. I.—The Briggs Engineering & Construction Co., of this city, has been awarded the contract to build the new Randall St. bridge by Board of Contract and Supply, following opening of bids. The Briggs Co. bid was lowest of four received on the work. The bidders and their figures, exclusive of furnishing of screened gravel, which was not estimated, were as follows: Cruise & Smiley Construction Co., \$12,918.35; Briggs Engineering & Construction Co., \$11,635.85; Valley Co., \$13,074.10; Famiglietti Bros., \$11,731.25. Cruise & Smiley wanted 100 days for the work, the Briggs Co., 80 days, and the Valley Co., 93 days. No time limit was noted in Famiglietti Bros.' bid.

Chippewa Falls, Wis.—Thos. E. Wooley, of LaCrosse, was awarded contract for new Spring St. bridge, Aug. 27, for \$7,947, who will begin work at once. Contract calls for concrete structure, creosote block floor and bush hammered panels on sides. Bridge will be double arched and illuminated with six post electric lights. Following contractors submitted bids: Charles Roberts, Holcombe, \$15,500; Garbey & Weyenberg, Appleton, \$10,265; George Shannon, Chippewa Falls, \$9,625; Continental Bridge Co., Chicago, \$9,770; Iowa Bridge Co., Minneapolis, \$9,180; Thos. E. Wooley, LaCrosse, \$7,947.

MISCELLANEOUS

Washington, D. C.—An American Consular officer in Greece reports name and address of man who desires to receive offers for about 25 automobile tractors of 10, 20 and 30 tons capacity, capable of mounting grades of 18 degrees. The tractors must be four wheeled, with or without trailers. Correspondence may be in English. No. 18,143, Bureau of Manufactures.

Jacksonville, Fla.—Construction of swimming pool is being urged.

Augusta, Ga.—At called meeting of Council October 6th was date set for opening of bids for sale of \$250,000 city of Augusta flood protection bonds of 1914. Clerk of Council was instructed to advertise for bids immediately. Mr. Nisbet Wingfield, city engineer, stated that sufficient funds will be derived from this sale of bonds to complete construction of levee, with exception of paving the bank.

Augusta, Ga.—Final action in matter of wharf facilities at docks on Bay St. was taken up by city council Aug. 30, when resolution was unanimously adopted providing for expenditure of \$20,000 to remodel present warehouse.

Streator, Ill.—Purchase of motor ambulance and patrol wagon is being considered.

Joplin, Mo.—It is probable that city soon will purchase scarifier at cost of about \$700.

St. Joseph, Mo.—Mayor Elliot Marshall has issued a proclamation formally calling special election vote on proposed bond ordinances Sept. 21. In all there are 11 ordinances calling for total bond issue of \$1,047,000 for improvements in various parts of city. Majority of issue will be used in construction of sewers in various parts of city. Appropriation calls for issuance of \$550,000. Ordinances to be voted upon call for \$75,000 for improvement and purchase of parks; \$25,000 for new workhouse; \$25,000 for contagious disease hospital; \$125,000 for improvements to streets and highways; \$75,000 for improving electric lighting of streets; \$86,000 for additional equipment for fire department; \$10,000 for street flushers; \$15,000 for garbage disposal plant; \$12,000 for asphalt paving and \$50,000 for a drainage basin in so-called Brookdale district.

Columbus, O.—Bids will be received until noon, Sept. 9, by director of public service for furnishing and delivering gasoline for Municipal Reduction Plant. Geo. A. Borden is director of public service.

Coshocton, O.—Bids will shortly be advertised for remodeling of city building for fire company.

Youngstown, O.—Prospects are strong that Youngstown will get new street corner signs before first of year. New streets committee of Council has decided to recommend bond issue of \$7,500 at next meeting of City Council Sept. 13 for this purpose. Several types of signs are under consideration, but com-

mittee says it will insist on metal sign with guarantee of ten years.

Allentown, Pa.—A resolution authorizing Mayor to enter into agreement with Frank Koester, the New York city planning expert, has been unanimously adopted. Mr. Koester will contract to supply city with city plan adapted for gradual development of the city from economic, engineering, artistic and landscape standpoints.

Erie, Pa.—T. J. Lynch, chairman of Pennsylvania Water Supply Commission, has sent communication to Mayor Stern and council ordering that no time be lost in improving channel of Mill Creek for regulation of flood water.

Harrisburg, Pa.—City Superintendent of Finance Gorgas opened bids Aug. 30, noon, for the purchase of \$100,000 of the \$300,000 1913 public improvement loan that remains unissued. The bonds bear 4 per cent interest and are to be delivered about Sept. 10. The First National Bank, the Merchants' National Bank, and the Harrisburg National Bank together offered to take the whole issue at par and a premium of \$210.

Beaumont, Tex.—Attorney general has approved of bonds in sum of \$100,000 for wharf, dock and terminal improvements.

Seattle, Wash.—Board of County Commissioners have instructed H. P. Pearce, Arcade Building, to prepare plans for interior fixture work on new court house.

CONTRACTS AWARDED.

East Chicago, Ind.—For constructing garbage disposal plant to Chas. F. Walters of Cincinnati, O., at \$12,000.

Joplin, Mo.—City council has authorized purchase of 7-ton gasoline tandem street roller and gyratory rock crusher from Austin Mfg. Co. of Chicago at a cost of \$3,766. Roller is to cost \$2,350 and the crusher \$1,416.

Pompton Lakes, N. J.—Contract for building retaining wall along west side of Wanaque Ave., between Lenox and Bartholms Aves. was awarded Aug. 30 to P. Kamillo & Co. of Schenectady, N. Y., at special meeting of Borough Council. Price will be \$4.70 per cu. yd. Carillo & Co. are now completing concrete curbing along Wanaque Ave. Retaining wall will be 250 ft. long, 3 ft. wide at bottom, 2 ft. at top and its height will vary from one foot to ten. Work will be started at once.

Cincinnati, O.—Contracts for mechanical and elevator equipment of new court house, amounting to \$307,205, have been awarded two Eastern firms by new court house building commissioners. Contract for the mechanical equipment was let to Standard Engineering Co. of Washington, D. C., at its bid of \$203,350. To Standard Plunger Elevator Co. of Worcester, Mass., was awarded elevator equipment contract on its bid of \$103,855.

Columbus, O.—Contract was made Aug. 23 by Service Director Borden with Pausch-Selbach Wagon and Auto Co. for 10 wagons for refuse collection department. They will cost \$2,726.50. Two patrol wagons, to cost \$2,965 each, will be furnished police department by White Co. of Cleveland, contract for which was awarded by Safety Director Bargar.

Allentown, Pa.—For portable stone bin to Good Roads Machinery Co., at \$475.

Philadelphia, Pa.—Contract for erection of hospital building at Moyamensing prison has been awarded to Thomas Reilly for \$25,000.

Philadelphia, Pa.—Mayor Blankenburg has signed contracts for construction of city hall section of Broad St. subway and foundations of Frankford elevated line. His signature cleared way for starting of excavation work on Sept. 13. The contractor for subway section is the Keystone State Construction Co. James D. Dorney holds contract for the Frankford "L" work. The city transit engineers have prepared specifications for further work on both operations, since more than \$1,000,000 is left from the \$2,000,000 subway appropriation and more than \$2,500,000 from the similar amount voted by councils for the elevated line. As soon as the present contracts have been begun Director Taylor will advertise for bids for the new operations.

Selmer, Tenn.—The Swamp Dredging Co., of Tupelo, Miss., has been awarded contract for constructing Cypress creek canal at .0825 cts. per cu. yd. This price includes clearing of right of way and excavating. Three bidders were present. Contractors will remove about 94,705 cu. yds. of earth. Route of canal is in center of McNairy county, parallel with M. & O. railroad, and extends from two miles north of Bethel Springs to a point one mile north of Selmer. It is 4.79 miles long and affects 850 acres of valuable lands.